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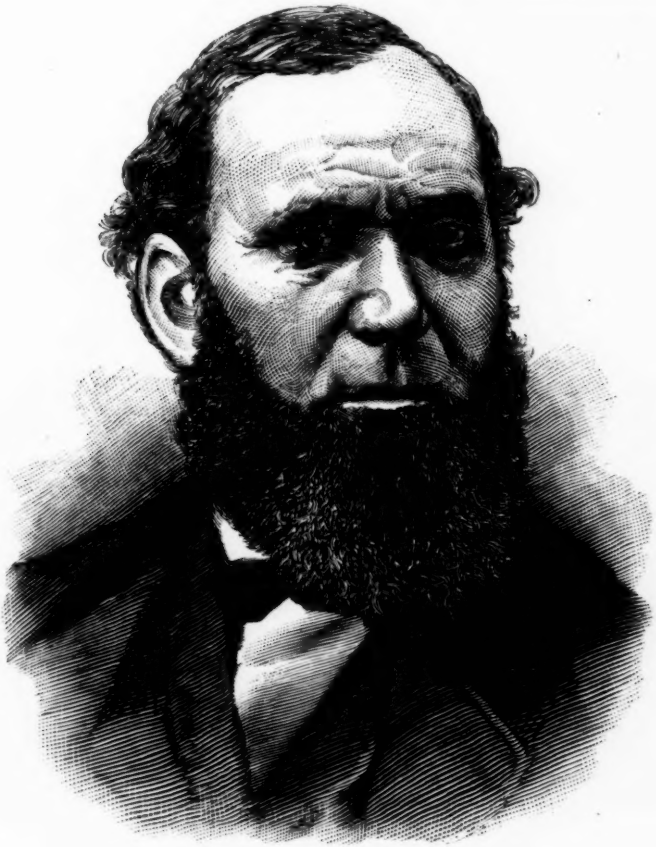


ALLAN PINKERTON, THE DETECTIVE.

FEW names are more widely known than that of Allan Pinkerton, whose face is before us. For thirty-five years he has been known as a detective, and for nearly thirty years has stood, perhaps, at the head of that singular profession. In 1851, before he had become known to the public much, he came into our office

as a stranger, and modestly asked for a delineation of character. Mr. Sizer having described him in general, said to him, that "he had a wonderful sagacity in the study of character, that he would understand strangers at sight, and know men like a book at the first interview; that he would know whom to trust and distrust at a glance, and would carry the figure and features of a man like a photograph in his memory." He burst out laughing, and turned to the examiner and said: "That will do. Last week I attended a lecture by Mr. L. N. Fowler, in our city, Chicago, and some of my friends quietly took me to the platform, to be examined in public; and Mr. Fowler said: 'This man would make a capital detective; he would smell a rogue three miles.' I am known in Chicago as a detective, and it was considered a great hit, and I thought I would just step into the New York office and see what you would tell me here. I am satisfied."

We have never seen the man since, although his name from that day has been widely familiar with the public here, and the realm of rascals has had good reason to fear him. His lamented death on the first of July, thus sadly brings him before the public. We wish to call attention to a few of his prominent qualities. In the first place, he looks strong, enduring, healthy. That well-set nose, those firm and strong lips, and massive cheek-bones, indicate power, constitutional vigor, great physical self-reliance. We fancy there is a special steadiness to that eye, as if he could see everything and not seem to see it; we fancy that in the whole face there is a great deal of self-control, self-command, a quiet, steadfast reticence, as if his purposes were unreadable by others. That immense fullness across the brow indicates great perceptive ability; to see, and scan, and criticise, all the conditions and surrounding incidents. Nothing escaped his attention, and he might have been a capital scholar in all scientific knowledge, such as practical mathematics, chemistry, natural history, and natural philosophy.

We notice Order in the fullness and squareness of the external angle of the eyebrow, and backward from that line. Constructiveness, mechanical judgment, power of understanding combinations. He would have made an excellent mechanic; could have worked by the eye as a blacksmith, or could have drawn and modelled as an artist. The fullness across the centre of the forehead, half way from the eyebrow to the hair, indicates memory of events, and places, and dates. The fullness in the middle of the upper forehead shows the power of comparison, analysis, discrimination; and at the centre of the forehead, just where the hair joins, is the region indicating knowledge of character, judgment of human nature, in respect to which thirty-three years ago two examinations culminated. The head shows ample Benevolence, and we have no doubt that he was a man of sympathy, and that hundreds of people have had occasion to know it. The width of the head between the ears is an indication of force of character, courage, thoroughness, efficiency, policy, power of concealment, ability to hold his thoughts under restraint; and his countenance is as expressionless as desirable in a detective. Such a face as that is never astonished, it can suppress its astonishment; can be interested and seem careless; can be very much interested in extraneous things, and apparently careless about them. His Firmness was immensely developed, and he had rather strong Self-esteem: a consciousness of his own merit, and worth, and power, which sustained him. He had strong Friendship, and those who were counted his friends trusted in him. He had a great deal of natural enthusiasm, the spirit of controlling and mastering men in a silent, quiet way.

He had the feminine, intellectual, intuitive sagacity; the power of knowing a good many things to his entire satisfaction before he had time to think them out; and he was more indebted to his mother for his talent as a detective than to his father. He had his father's power, courage, steadfastness, and pride, and the

father's middle section of the face, from the eye to the mouth. Had he devoted himself to engineering, or some of its branches, such as architecture, chemistry, or construction; had he devoted himself to medicine and surgery, he might have been a master in that field, and would have made a first-rate lawyer, or could have been successful in commerce or manufactures.

This celebrated agent of law and justice was of Scottish parentage, and born in Glasgow, August 25, 1819. He was the son of William Pinkerton, a weaver by trade, but who was some time a sergeant of police. William Pinkerton died when his son was about nine years old, from the effects of injuries received while making an arrest. The boy obtained employment with a print-maker, but afterward served an apprenticeship with a cooper When about twenty-one years old the Chartist movement for a more liberal form of government, with which he was identified, culminated in the Birmingham riots. Several of the leaders were arrested and convicted; some of them were put to death and others received various terms of imprisonment. Young Pinkerton's activity in connection with this outbreak made him a marked man, and so apprehensive of arrest. He hurriedly married Miss Joan Carfrae, a young lady to whom he had been for some time engaged, and on the following day sailed for Quebec. The vessel in which the young couple embarked was shipwrecked near Sable Island, on May 9, 1842, but the passengers were picked up by a passing vessel and taken to Quebec. This misfortune left them in a destitute condition, but they were aided in securing passage through the lakes to Chicago, where Pinkerton went to work at his trade. After a few years he established a cooperage of his own at Dundee, Ill., which became prosperous.

About this time his first piece of detective work was done, almost by accident He had been in the habit of visiting the islands in Fox River to procure materials for his stock, and one day he stumbled on a gang of counterfeiters. His love of adventure led him to investigate the operations of the gang, and he was so successful as to break it up. This was not accomplished without much risk, as he was shot at and wounded.

This exploit led to his appointment as a deputy sheriff of Kane County, Ill., a position in which he was instrumental in breaking up several gangs of horse-thieves and counterfeiters. His fame spread to Chicago, and the Sheriff of Cook County offered him the appointment of deputy sheriff. This place he filled for some time, when Mayor Church made him detective of the city force, an entirely new position. In 1852 Mr. Pinkerton became impressed with the importance of establishing a detective agency that would be independent of political influence. Securing the assistance of E. L. Rucher, an attorney, he established his agency and soon had the patronage of several railway companies. Among the four or five men first employed by Mr. Pinkerton was George H. Banks, afterward general superintendent of the agency, who remained with the agency until his death last year. Another was Timothy Webster, who was hung as a Union Spy in Richmond in the late war.

Mr. Pinkerton's agency soon grew to large proportions, and his reputation extended to all the leading cities of the country. One of the first important cases that came to him from the East was that of the robbery of Adams Express Company, at Montgomery, Ala., of $40,000. He traced the thieves from Alabama to New Jersey, and succeeded in recovering nearly all the money in the original packages. This established his ability for the express companies, and he afterward undertook many other important cases in their behalf, and with success. In 1861 he was employed to look out for incendiaries on the Philadelphia, Wilmington, and Baltimore road, and while at work discovered a plot to assassinate President Lincoln. He at once took charge of the Presidential party while

en route for Washington, and carried Mr. Lincoln safely through Baltimore. When the war broke out President Lincoln authorized Mr. Pinkerton to establish the Secret Service Division of the Army, which he did under the name and title of Major E. J. Allen.

Among the many famous exploits connected with his name, was the capture and conviction of Augustus Stuart Byron, whose father was Lord Byron, and his mother Mary Stuart, and of a young man named Napier, a nephew of Admiral Napier, of the English Navy. These men wrecked a train on the Michigan Southern and Northern Indiana Railroad, and secured a large amount of money by robbing the mails. He was engaged in the pursuit of the James boys in Missouri, losing five men in one year while thus occupied. He declared that he would have captured them had he been backed by the Governor, as Governor Crittenden subsequently backed other detectives. Other operations of his that met with success, were the breaking up of the organization of Molly Maguires in the Pennsylvania coal regions, which occupied a period of eight years, and the extermination of the band of desperadoes led by the four Reno brothers, whose headquarters were at Seymour, Ind. It was through his agency also that the capture of the Bidwell brothers, the Bank of England forgers, was effected, the conviction of the bond forgers Roberts and Gleason, and the capture of the Northampton Bank robbers.

Mr. Pinkerton's success was in a great measure due to his stubborn adherence to several rules that he regarded as cardinal. In the first place, he laid it down as a maxim that a criminal can not keep a crime secret. He has to tell it to some one, sooner or later, and Pinkerton trained his men to obtain the confidence of lawbreakers. He also made it a rule to employ honest, reliable men. He had the utmost contempt for the practice of setting a thief to catch a thief. The work done through his agency, whether successful or not, was charged for at unvarying *per diem* rates. Divorce suits and matters involving family scandals he never touched. The extent of the business done by detectives may be inferred from the fact that his agency has thirty-five detectives connected with the office in New York, forty at the Chicago headquarters, and twenty working with Philadelphia as a centre. It also has a private night watch of 200 men in Chicago, guarding the banks, express offices, and wholesale houses. This force was established over thirty-five years ago when there was no regular police in Chicago.

Besides his detective business, Mr. Pinkerton was a farmer on a rather large scale in Illinois. He owned and cultivated two farms of 750 acres at Onarga, on the Illinois Central Railroad, south of Chicago, where recently he planted nearly a million Scotch larch trees imported for him. He was the author of fifteen volumes of experiences in the disclosure of crime and the arrest of the perpetrators. Among these are the following: "The Spy of the Rebellion," giving a history of the spy system of the United States Army during the war for the Union; "Professional Thieves and the Detectives," and "Thirty Years a Detective."

His death occurred on the 1st of July last, from the effects of a fever contracted several weeks before in the South. He had previously suffered three paralytic attacks—over which a naturally powerful constitution seemed to triumph, but they left him, doubtless, in a much weakened state.

CHINESE paper was invented in the first century of the Christian era, and is made of bamboo. The paper used for making books is very thin and transparent. It is printed on but one side, and is so folded, that every leaf is double with the leaf uncut. Their books are not bound like ours, but every work is divided into a number of separate parts, which are protected with strong paper covers. The parts are then placed in a square case or envelope. Books are very cheap, and are mostly of a historical character.

TRUE RELIGIOUS EDUCATION.

CONSCIOUS of the immense power of the religious sentiments in the human mind, and of the impossibility of separating them without violence from their vital union with the moralities, I have all along felt that the plan of excluding religion from education was inherently a defective one, which could not continue to hold its place against the assaults of reason and truth. In the past position of the question, it was the best which could be followed, and was defensible as the smallest of several evils among which society was compelled to choose. As such I still advocate and defend it; but I think it important that it should be defended and advocated on its true grounds, and not as in itself proper and desirable. Instead, therefore, of recommending the separation of secular from religious instruction, as in themselves distinct, I would adopt the true grounds, and in answer to the wish of some to make all education religious, say: Yes, I agree with you entirely that all education must be based on religion and that the authority of God should be recognized by us all as the only infallible standard in everything; but that we may know what we are talking about, let us understand distinctly what each of us means by religion. Standing on such a basis, we can not be shaken by either Jew or Gentile, Calvinist or Lutheran. Then comes the discussion, What is religion? A says it is a code embracing, suppose, ten principles in all. On examination B, C, and D find that, say, eight of these refer to practical matters directly influencing conduct and character, and that they approve of them as true; but each affirms that the remaining two are church dogmas, untrue, dangerous to salvation and deserving of all reprobation. For these B proposes to substitute other two, but is, in his turn, voted wrong by A, C, and D. The latter two follow with their substitutes, and are each condemned; all, meanwhile, admitting the eight practical principles to be sound and necessary to happiness. Here it is plain that if the children of all are to attend the same school a compromise must take place; and while all agree to leave out the two articles, they may cordially unite in teaching the remaining eight, and in endeavoring to insure their recognition by the pupils as their best guides and as indispensable links in that religious chain which binds them to their Creator and imposes upon them the primary duty of seeking to know and do His will in all things. This done, let the parents and priests teach what they deem truth on the two disputed points, in addition to the religious principles thus daily and hourly inculcated and brought into practice among both teachers and pupils.

It may be said that this is what is done already. But there is a difference. At present the line of separation between religious and secular education is drawn sharply, and in the school the pupil is not taught that the natural arrangements he studies or sees in play around him have been devised by Divine Wisdom for his guidance and happiness, nor are his feelings interested in securing obedience and gratitude to God as a moral and religious duty in return. The arrangements of nature are taught simply as "knowledge" coming from nobody, and leading only to worldly advantage, not personal happiness. Religion again is taught not as the complement of that knowledge, leading the mind back to God and bearing at every moment on our welfare, but as a something apart, which does not dovetail with our conduct or duties. In short, the prominent idea in the minds of both teachers and taught, under the present national system, is, that secular knowledge and religion are distinct, and have no natural connection; and hence neither exercises its legitimate influence.

But the result will be different if it be recognized universally that, taught as it ought to be, all the knowledge conveyed is inherently religious, and calculated,

necessarily, to bring the creature and the Creator into more immediate contact, and to develop feelings of love, admiration, reverence, and submission to the Divine will. Let it be proclaimed and understood that the inevitable tendency of knowledge is to lead the mind to the Creator, and that wherever it is taught without this result there is and must be a defect of method, or a fault in the teacher, which ought instantly to be remedied. Let it be proclaimed to the four corners of the earth, that education, rightly conducted, is religious in the highest degree, although embracing none of the tenets peculiar to sects or parties, and that a "godless education" is a contradiction and a moral impossibility. It would be as logical to speak of a solar light without a sun. Every truth, moral, physical, or religious, springs from, and leads directly to, God; and no truth can be taught, the legitimate tendency of which is to turn us away from God.

Instead, therefore, of giving in to the opponents of national education, and admitting a real separation between secular and religious knowledge, I would proclaim it as the highest recommendation of secular knowledge that it is inherently religious, and that the opponents are inflicting an enormous evil on society by preventing philosophers and teachers from studying and expounding its religious bearings. If this were done it would lay the odium at the right door, and show that the sticklers for exclusive church-education are the real authors of "a gigantic scheme of godless education," in attaching such importance to their own peculiar tenets on certain abstract points; that rather than yield the right of conscience to others, they are willing to consign society at large to an absolute ignorance of the ways of God as exhibited in the world in which He has placed them, and to all the misery, temporal or eternal, certain to result from that ignorance.

It must be admitted that, as at present taught, much of our knowledge is not religious; but this is an unnatural and avoidable, not a necessary, evil, and it has arisen, in a great measure, from the denunciations of the party opposed to the diffusion of education. By stigmatizing as infidel and godless whatever knowledge was not conjoined with their own peculiar creed, they deterred men from touching upon or following out the religious aspects of knowledge; and if they be allowed to maintain longer the wall of separation they have erected, the result will continue to be the same as in times past. The only way to meet them is to turn the tables and denounce them as the obstructors and enemies of religious education, because they refuse to allow any exposition of the Divine wisdom and arrangements and will which does not also assume the equal infallibility and importance of their interpretation of His written wisdom and ways. This is a tyranny to which human reason can not continue to submit, and the sooner they are put on the defensive the better.

Science is, in its very essence, so inherently religious, and leads back so directly to God at every step, and to His will as the rule of our happiness, that nothing would be easier or more delightful or more practically improving to human character and conduct than to exhibit even its minutest details as the emanations of the Divine wisdom, and their indications as those of the Divine will for our guidance. In a well-conducted school-room or college-hall, the religious sentiments might be nourished with the choicest food *para passu* with every advance in intellectual knowledge. The constant practice of exhibiting the Deity in every arrangement would cultivate habitually that devotional reverence and obedience to His will which are now inculcated only at stated times, and apart from everything naturally calculated to excite them. So far from education or knowledge proving hostile to the growth of religion in the minds of the young, they would in truth constitute its most solid foundation, and best prepare the soil for the seed to be afterward sown by the parent and priest, who would then receive from school a really religious child fash-

ioned to their hands, instead of being, as now, presented only with the stony soil and the rebellious heart.

The practical inference from all this is, that while we continue to advocate the exclusion of sectarianism of every hue from our educational institutions, we are so far from wishing to exclude religion itself, that our chief desire is to see all education rendered much more religious than it has ever been or ever can be under the present system. To make religion bear its proper fruit, it must become a part and parcel of everyday life. It must, in fact, be mixed up with all we think, feel, and do; and if science were taught as it ought to be, it would be felt to lead to this, not only without effort but necessarily. God is the creator and arranger of all things; and wherever we point out a use and pre-arranged design we necessarily point to Him. If we can then show that the design has a benevolent purpose, and that its neglect leads to suffering, we thereby necessarily exhibit the loving-kindness of God and recognize it even in our suffering. If we next point out harmony between apparently unconnected relations, and show how all bear on one common end, we necessarily give evidence of a wisdom, omniscience, and power, calculated to gratify, in the highest degree, our sentiments of wonder, reverence, and admiration. If we familiarize the mind with the order and laws of God's providence and their beneficent ends as rules for our conduct, the very reverence thereby excited will prompt to submission —systematic submission because cheerful and confiding—to His will as our surest trust.

Here, then, is the legitimate field for the daily, hourly, and unremitting exercise of the religious feelings in the ordinary life of man, and for the exercise of that true, vivifying, practical religion which sees God in all things, lives in His presence and delights in fulfilling His will.—*From the "Life and Correspondence of Andrew Combe, M.D."*

ORGANIC CEREBRATION.—No. 4.

(*Continued.*)

SELF-ESTEEM.

SELF-ESTEEM is next to be considered. Unfortunately, in America, this organ is not so large as Approbativeness, while it ought to be better developed so as to give a man an intrinsic, interior, personal sense of his ability, worth, and power; and then, if people censure him injuriously, if they ridicule him contrary to propriety, he can stand erect and wait until he gets appreciation. Self-esteem gives a man a sense of individual honor, while Approbativeness gives one a keen sense of the honor which other people may bestow; in other words, reputation. Let it be remembered that the sentiment of honor which is born of conscience, reason, and Self-esteem is individual, intrinsic and interior, while reputation, being only what other people think of us, not that which we think of ourselves, comes through Approbativeness. Those with large Approbativeness are often called proud, but more correctly called vain; those with large Self-esteem are often thought not to be proud, yet they are really the only proud people we have; such a man, when conscious he is in the right, moves onward with dignity and self-possession; looks with pity or contempt upon the trifling vanities of life and the varying currents of approval and disapproval, according to the giddy guides of fashion; can stand erect as St. Paul stood up, saying, "None of these things move me."

A man with large Self-esteem, good intellect and good morals, and with Approbativeness subordinate, so that its voice is not permitted to be very distinctly heard, moves with a dignified self-respect, stands erect, draws his head well

upward and backward; does not brag; does not try to show off; doesn't seem to care whether people appreciate the good things he says or does; whether they admire his excellent team, or handsome fields, or snug and comfortable home; he does not dress to attract attention, but to clothe himself with decency and cleanliness, and with sufficient regard to public sentiment as not to be eccentric, and he moves with steady strength of character, and many people think that if he had any pride he would try to do as other people do.

The difference between Approbativeness and Self-esteem is marked, yet they are often blended in people's estimation, and are convertible terms. Phrenology

Fig. 1.—Self-esteem and Firmness Large.

understands it differently. To illustrate: A farmer's wife had large Approbativeness, and wanted to be in style and have her husband dress handsomely. He was going with a load of potatoes to the village, where he was well known, and a deacon in the church. She ran to the door as he got ready to drive off, saying, "Here, John, put on a better coat." "Oh, pshaw, Mary, they all know me down there"; and he wore the old coat that was fit for the work. The next day he was going with a load of potatoes to a neighboring village, and she insisted that as he was going over there he must put on a better coat. "Oh, never mind, Mary, nobody knows me over there." She wanted him to wear nice clothes where he was known, because he was known, and also where he was not known; and for the same reason the man insisted on not wearing such clothes as were not adapted to the dirty errand he had in hand. Self-esteem serves to give a man a consciousness of his own talent and worth, and to esteem himself justly, or rather does not produce a desire to be estimated beyond his merit; it gives him a sense of his own personal worth, and makes him believe that he can do whatever it may be his duty to do. If elected to preside over a public meeting, he accepts the position and tries it; but his want of knowledge and expertness is soon seen to the whole house; yet he looks on the congregation with dignity, and will follow the suggestions which intellectual men of experience may offer in the way of motions; while a man who was too diffident to believe himself capable of occupying the position, and declined the election *positively*, as soon as the man with large Self-esteem is fairly seated and his inexperience is shown, the modest man takes exception to the ruling of the chair, argues the points; he really knows how, but he was afraid, with his Approbativeness and Caution, to try it. The other, with large Self-esteem and neither Approbativeness nor Caution large enough to alarm him, presides, and does not know to this day but that he did it up handsomely.

A man with large Self-esteem governs; he likes to govern; believes he is capable of governing; and sometimes, if he has Combativeness and Destructiveness large, and not very strong Benevolence or social feeling, becomes tyrannical in his control of others. Such a man acquires property to give him power and independence, and sometimes wears poor clothing and drives a shabby team; has a house meanly furnished, and sets a parsimonious table for the sake of gaining property, or saving expense that he may increase his wealth, that he may ultimately stand serenely supreme, the richest man in town. He has real pride in being shabby in his dress and appearance; the pride consists in his feeling that he is not a servant of public senti-

ment; it gratifies his Self-esteem to feel that he is above public opinion. He dignifies work and calls it by its right name; he doesn't talk about obtaining a position and getting a situation. If he is in a bank or store, he will speak of being very much confined by his *work* in the bank or store; and if he wishes to do it, he works in his garden and calls it work; he works in his hay-field and trims his trees and his grape-vines; he carries his own valise, if convenient, and is neither afraid nor ashamed to serve his own wants for the sake of his family.

A dudish and dandy young man in Boston, eighty years ago, started housekeeping in a small way, and having bought a couple of pounds of meat, wondered whom he could get to carry it home for him; and there was a plainly dressed, elderly man stood there and asked what he would give to have it carried home, and he told him a dime; he said, "I will carry it for you," and he trudged along, following the slender understanding of the master of the ceremonies until he came to the door, and as he paid him his money he thought he would ask the old man his name, thinking he might want to get him to do other errands; he replied, "They call me in Boston Billy Gray." He was the John Jacob Astor of Boston, the millionaire of his time. We did not learn whether the business relations were continued; of course it was fun for Gray; we fancy it was not fun for the other, and perhaps he never repeated the story. We judge the young man had the larger Approbativeness and "Billy Gray" had the larger Self-esteem. But there is a point with some men which the possession of a million dollars or fifty millions enables them to reach in character, namely, as Mrs. A. T. Stewart said in a little party of ladies, when she appeared without jewelry, without a ribbon or a flounce on her dress, and saw she was being scanned by some old friend: "This is one of the privileges of wealth, that one can dress as one pleases." Of course, she knew she was richly and nicely dressed, but she did not feel the need of putting on flounces and trimmings and trappings, as everybody knew she could have all she wanted.

FIRMNESS.

Firmness, the last of this group, may be said to co-ordinate with nearly every faculty, and that sensibly and palpably. What a wonderful hitching-post is Firmness to Conscience, to Self-esteem, to Cautiousness and Approbativeness. When Pierpont cried in a poetic fervor,

> "Stand! the ground is your own, my braves;
> Will ye give it up to slaves?
> Seek ye greener graves?"

he exercised his own tremendous Firmness and invoked every faculty to per-

Fig. 2.—Geo. Bancroft—Firmness, Self-esteem, and Continuity Large.

manency and courage and self-reliance, and the manifestation of power. When Veneration was excited in conjunction with Firmness in the Psalmist, he says: "My heart is fixed; O God, my heart is fixed." So, also, when Isaiah said, "Trust ye in the Lord forever, for in the Lord Jehovah is everlasting strength," Firmness and Veneration were working together. When Ruth said to Naomi with the activity of her friendship, stimulated and strengthened by Firmness, she uttered the words which immortalized her name and her friendship: "Entreat me not to leave thee, or to return from following after thee; for whither thou goest I will go, and where thou lodgest I will lodge; thy people shall be my people,

and thy God my God; where thou diest I will die, and there will I be buried; the Lord do so to me, and more also, if aught but death part thee and me." What reader has not felt at times—I must stand firmly in this position; I must call on courage and hope and fear and shame; I must summon affection and conscience and reason, and rally all that I know or dream or fear, to abide by this central and necessary resolution? "I am in earnest, I will not equivocate, I will not excuse, I will not retreat a single inch, and I will be heard," said the brave but persistent William Lloyd Garrison; and with less Firmness than he had, he never would have taken and maintained as he did a stand so unpopular, so unprofitable, so dangerous.

CONTINUITY.

Continuity is located between the Selfish Sentiments and Social feelings, as if it were a middle-man between the two groups. It is different from Firmness in this, that it gives patient application, or persistency, while Firmness gives steadfastness and determination. Let us illustrate the two faculties. There is ice on the Hudson River, and it is capital sleighing to Poughkeepsie, seventy-five miles. On the turnpike it is also good sleighing along the shore. Two men starting for Poughkeepsie with an equally enduring team, one takes the straight, level, solid track on the ice, because he has large Continuity; he has also large Firmness, and the faculties would naturally co-ordinate. When he has wrapped himself in his blankets and furs, and only his eyes and nose are exposed to the stinging frost, he is extremely happy in the fact that he has nothing to do but plod, plod, plod, and stick to it until he has conquered the seventy-five miles. The other man has moderate Continuity, but equally large Firmness. He prefers to go winding through the villages where every variety surrounds him, where no two half miles of road are alike consecutively, and his love of change, the up and down hill, and turning curves, and passing elegant dwellings through the villages, keep his mind on the alert all the time, and yet Firmness says, go on, go on, go on, to his team, and the two men reach the hotel in Poughkeepsie at the same moment; each has been persistent and happy in the performance of the journey. Suppose we change, and let the man fond of monotony take the field of variety, and he that must have variety to be happy take the monotonous route on the ice; certainly the man on the ice would have nothing to keep him from freezing but the blankets; he would wonder when, when, when shall I reach that far-distant point? Fourteen miles and not a turn! The man on the shore, with large Firmness and Continuity, would feel annoyed by the variety; everything would seem to be an obstacle, every curve a difficulty, everything that diverted his attention from the central thought an interference, an impertinence, and he would reach his destination very sour and feel much broken up. The other one would emerge from the icy road on the river, saying, "You will never catch me on such a journey as that again; pelting away in the northwest wind all day, with not anything but ice, and ice, and ice, and distance."

CRANIAL AFFINITIES OF MEN AND APES.

A LECTURE BY DR. RUDOLPH VIRCHOW, OF THE UNIVERSITY OF BERLIN—TRANSLATED FOR THE "PHRENOLOGICAL JOURNAL, etc."

THE question of the descent of man from the ape has taken so prominent a place in the ideas of a great mass of people, that it has become, in like measure, a necessity to learn more intimately the reasons why such a question has been at all called up. The fact can not, indeed, be overlooked that the resemblance of the ape to man is a very striking one; and it has not been reserved

to our times alone to investigate the subject anatomically. Galen, the celebrated physician of the second century, urgently recommended to all who wished to prepare themselves for the knowledge of man and his diseases, the study of anatomy of those apes which stand "nearest to man."*

This advice was so conscientiously followed down to the close of the Middle Ages that it may be said nearly all the anatomical knowledge of the physicians of those days was derived from the study of the structure of the ape alone. We are therefore by no means astonished to hear when, in the seventeenth century, the first man-resembling ape, in the stricter sense, was brought to Europe,† that it had been called by the natives of Borneo the Orang-outang, that is, the "Man of the Woods"; and people easily acquiesced when, again a hundred years later, the celebrated Swedish naturalist Linné, in his zoological system, classed man under the scientific name of *homo sapiens*, along with the monkeys and some other mammals in one great division known as the Primates.

Since that time people have been endeavoring to ascertain the differences actually existing between the ape and man. For system demands a minute adduction of all separating, and consequently characteristic, peculiarities for each class and species. The single bones and the skeleton of the ape, the muscles, the brain, etc., have therefore been constantly subjected to more minute examination. But these investigations, although at first apparently very fruitful, lost much of their importance in the course of time. It was shown that the various species of apes differed in many particulars much more from each other than they did from man. This fact became all the more apparent as the number of the really man-resembling apes increased, and numerous specimens arrived in Europe; more especially since the year 1847, when the first reliable information was obtained about that most remarkable of all, the gorilla.

This approach to man, apparently growing closer and closer, aroused all sorts of uncomfortable feelings. The over-smart people, who knew everything beforehand, helped themselves by casting aside the anatomical sequence of the question altogether. They appealed to the fact that even Linné had acknowledged, in the qualification *sapiens* (wise), that it was the mind that constituted the difference between man and other animals. Why, then, were more extended researches needed, when rationally such a determining physiological characteristic was given to man, nay, when every individual could, from his own consciousness, recognize this sharply defined difference? Carl Vogt* has used this method of demonstration in a reversed order, and thereby, indeed, disclaimed it. He collected the reports relating to a large number of human children whose minds had never attained to a truly rational development; whose intellectual attainments had, in part, not even reached as high as those of the anthropoid apes. In this manner he contrasted the manlike apes with the apelike men (if I may so express myself); and while he at the same time showed that the organization of these ape-men was also related in a variety of ways to the simian type, he arrived at the conclusion that the way by which he had entered upon his examinations, that is, the retrogressive one, "constantly approaches the common original stem of the primates, from which we, just as well as the apes, are descended."

It would be, in fact, a much easier task to take certain lower animals distinguish-

* Claudius Galenus, "De anatomicis Administrationibus." In Lib 1, cap. 2, he says: "*Simiæ hominis figuræ quam proximæ simiæ vel maxime homini similes.*" In the sixth chapter he draws up a list of the animals which, according to their nature, are not essentially different from man (*quæ non multum ab hominum natura recedunt*)—apes, and their different species, bears, mice, bipeds, and ruminating animals.

† Nic. Tulpius Amstelodamensis, "Observationes Medicæ," Amstel., 1652, p 283, Tab. xiv., gives a description and a drawing of them.

* "Ueber die Mikrocephalen oder Affenmenschen." In the "Archiv für Anthropologie," 1867. Vol. ii., pp. 267, 268.

ed from their neighbors by a surprising development of "instinct" out of their surrounding group, than to remove man from the group of the vertebrate. How high do the ants, by reason of their physiological attributes, stand above the great majority of all other insects? But is this a reason why we should set them in a separate class? So does man, according to his whole organization and development, likewise belong to the vertebrate, not merely as his name would appear to imply, according to the structure of his skeleton or merely his vertebral column, but his whole nervous system, and especially his brain; and it must at least be admitted, that without a good and highly developed brain, the human mind could not reach its exalted manifestation. *Man has a rational mind only in so far as he*

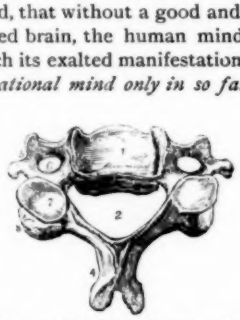


Fig. 1.—A Vertebra of the Neck.

1. Body. 2. Spinal opening. 3. The pedicle. 4. Spinous process. 5. Transverse process. 6. Vertebral foramen. 7. Superior articular process, one on each side. 8. Inferior articular process.

possesses a brain, and he possesses the latter, again, only in so far as he is a vertebrate animal.

It is easily comprehended, therefore, that the special researches in regard to the resemblance of apes to man have had reference principally to the bony and nervous systems, or more definitely expressed, to the skull and brain. Both belong necessarily to each other, and are mutually necessary in their development. It is, therefore, with a certain degree of right that we can deduce consequences from the bones in regard to the nervous system, and especially from the skull back again to the brain—a method of conclusion which has a really positive importance in palæontology (the science of extinct species of animals and plants in the earth's strata). Let us now, therefore, look somewhat closer into the theory of the spine or vertebral column.

In all vertebrate animals the fundamental basis of the trunk is formed by the spine. In its early stages, this member is cartilaginous, but, with the majority of all classes of vertebrates, ossified at an early period. Only in the lowest order of fishes does this condition of cartilage continue all through life. All other fish—the amphibia, birds, reptiles, mammals, and man—get an osseous spinal column, which is composed of a varying, but, in the separate classes and species, usually fixed number of separate vertebræ. The vertebræ are placed one above, or in front of the other, being held together by interlayers of cartilage.

The separate vertebræ are generally somewhat differently formed, according to the position which they occupy. In weight, breadth, circumference, the entire structure, they vary according to the determination and functions of the part of the body concerned. Although a great variety in the appearance and form of the vertebræ is thereby occasioned, the groundwork is still the same throughout, and we can thus present, without difficulty, an ideal scheme of the vertebral type. Each vertebra forms a ring or annulus rounded out on the inside; on its anterior we distinguish a thicker and more elevated process, to which is given the name of *vertebral body* (K, Fig. 2); at each side a protuberance, the arches (b), and behind, a part which is generally somewhat higher and jutting more outwardly, the *spinous process* (d). These four parts are repeated in every vertebra.

For a more precise understanding, it is further to be remembered that what in the human being we call "front" or "anterior," is when referring to most vertebrate animals, "under" or on the abdominal side. The upper side in the vertebrates is the back or posterior side in human beings. Since, however, our observations generally commence with Man, we shall commonly use the expres-

sion *anterior* and *posterior* in the sense of the upright position of the body.

In this upright posture we feel in the centre of the back the projection of the spinous processes through the skin. They lie so near the surface that their places can be perceived by the eye at each motion of the body through the skin. The whole row of them is termed the *backbone* or *spine*. The other parts of the vertebræ lie so deep, and in part so surrounded with muscle, it is difficult, or almost impossible, to reach them in the living subject. Nevertheless, feeding-time frequently offers an opportunity to observe the arches of the vertebræ of wild and tame animals, birds, fish, etc. The thicker and more protuberant portions of the vertebral bodies can thus be recognized without any difficulty. In younger animals, for instance in calves, we may see even traces of the original cartilage.

If we select as the subject of our demonstrations the vertebra of the neck of a child (Fig. 2), we discover in the cartilaginous base peculiar osseous centres or germs, which may be likewise composed of several parts; the centre of ossification for the spinal process, for instance (d), being made up of two lateral halves. The older the animal or human being, the larger are these osseous nuclei, since the original cartilage becomes constantly more and more ossified and joining to the centres or germs already present. In adults, they approach constantly, and at last, blending with one another, each vertebra comes to present a single connected osseous formation. Nevertheless, the knowledge of the parts which earlier existed separately (nuclei) is of great importance for the proper consideration of the formation of the skull, as will be shortly made evident.

The space within the osseous ring, the *great vertebral cavity* (h), contains the *spinal cord*. Since every adjacent vertebra possesses a similar cavity, the position of the vertebræ one over the other forms a continuous canal—the *vertebral canal*—which is carried on to the head. In front, it is firmly closed in by the vertebral body and the intervertebral cartilage; to the side and back the interspaces between the arches and the spinous processes are filled out with a ligamentous mass. In this manner an effective protection is afforded on the one hand for the spinal cord, and, on the other, secures the requisite flexibility. At the point of connection of the vertebral body and the arch, a more intricate arrangement is observed on both sides. The arch here

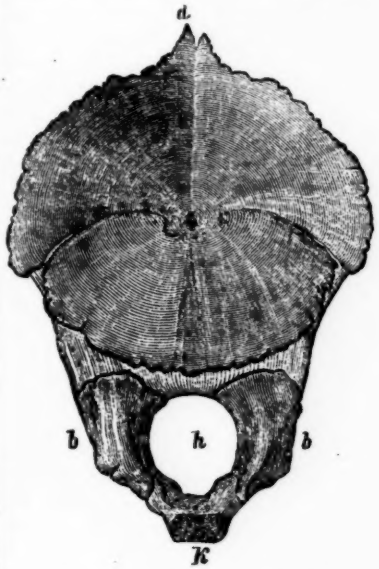


Fig. 2.—Immature Cervical Vertebra.

throws out two small processes—an internal and an external one—which are so affixed to the body of the vertebra, that between them there remains a small space (the *foramen*) for the reception of a blood-vessel—the vertebral artery (Fig. 1). The inner process has a slight groove on its upper and under surface. By reason of the arches lying one above the other, the corresponding grooves form a horizontal intervertebral canal, through which the nerves of the spinal cord enter and pass out. Finally, the exterior processes of the arches form all

sorts of processes and protuberances to the exterior as well as to the upper and under sides, whereby they constantly assume a more complicated form, especially in the pectoral and lumbar vertebræ. Some of these processes, as the *articular*, serve as a flexible connection of the vertebræ with each other; others are designed for the insertion of muscles; others finally, establish the connection with adjacent bones, especially with the *ribs*.

It is unimportant for our purpose to trace further the larger or smaller transition forms of the vertebræ in the various divisions of the spine. One only of these is of more than common importance for our consideration; and it may, therefore, be especially considered here. That is found at the top of the column, and bears the "globe of the skull," and for this reason it received in antiquity the poetical appellation of *atlas*. This vertebra differs from all the rest in the absence of the spinous process; the vertebral body and the greater part of the osseous substance being pressed into two lateral accumulations, the so-called lateral masses. For this reason it is customary to describe it as an annulus composed of an exterior and interior curvature, and the two lateral masses. The examination of an undeveloped atlas shows that all the essential parts of a vertebra are present even here. In the anterior half of the annulus there lies, as usual, the osseous centres for the vertebral body; but it is from the commencement very small, and ceases to grow at an early date, leaving it only a flat swelling prominence, or knob. Originally separated by a long cartilaginous portion, the arches close together upon it, each with its separate, independent osseous centre, distinguishable as the transverse process, the articular process, and foramen for the vertebral artery; they turn into the relatively strong lateral masses, whose grooved articular surfaces secure the movable connection with the head; for the atlas possesses, in order to make possible the lateral motion of the head, that intervertebral cartilage which we find in all the other vertebræ. Finally, the posterior segment of the annulus shows a gentle rising in the middle, the mere suggestion of the spinous process to which two parted osseous centres serve as the base.

On account of its remarkable and in the highest degree typical form, the atlas constitutes the most suitable transition to the *cranial vertebræ*, whose nature is much more difficult to recognize, and has been known, indeed, for a short space of time. The human skull, as well as that of higher vertebrate animals, is formed in the main from three consecutive vertebræ, which we will designate as the *frontal vertebra*, the *middle* or *parietal vertebra*, and the *occipital* or *posterior vertebra*. Each is composed of one body, two arches, and a spinous process, made up of two lateral halves. But all these parts are so peculiarly transformed that long preparatory study is needed in order to recognize their importance. A comparison with the spinal vertebræ is rendered very difficult by a noteworthy circumstance,—the relatively compact and almost immovable connection, not only of the vertebral bodies with each other, but likewise of all the other vertebral parts of the skull,—a compactness which is adapted, in the highest degree, to give complete protection from external influence to that most important organ of the body, the brain. The occipital vertebra alone possesses an articular union with the atlas; the front one hangs firmly on to the parietal vertebra, which latter again is connected firmly with the frontal vertebra.

Just as the atlas represents the transition from the cervical vertebræ to those of the skull, so is the occipital vertebra, by reason of its form, that cranial vertebra most readily comprehended. But we must even here take for our consideration the undeveloped vertebra. On this condition (Fig. 2) all the essential parts of a vertebra are perfectly exhibited. In front lies, as is usual, an especial bone, the vertebral body (k), differing from the bodies of the other vertebræ only by a more flattened form. Connected laterally with

this on either side, by fine cartilaginous seams, is the arch (b), which, by means of its marked condyloid processes, approaches the lateral masses of the atlas, on which its articular centres rest. Toward the case, again, separated by a cartilaginous suture, somewhat thicker than the last, follows the spinous process (d), a cone far exceeding all other parts of the vertebra in size, and just this is the reason why its importance has been so difficult to denote.

This spinous process forms a broad, flat, concave lamina, of relatively thin formation, for which reason it earlier received the name of the *squama occipitalis*. It is that part which forms in every head that slightly perceptible and easily felt protuberance of the occiput; and at the same time the only spinous process of the skull, on which there is to be perceived a real osseous protuberance,—a continuation, as it were, of the backbone. These different parts of the back of the cranial vertebra surround,—still in the form of a ring,—the *great occipital foramen* (h), being the continuation of the vertebral canal, through which, in fact, the spinal cord ascends uninterruptedly to the brain.

As is easily to be perceived, the change in the form of this skull vertebra, as contrasted with the spinal vertebra, is most strikingly shown by the flat and large expansion of the spinous process. Therein is also stamped the character of the two other vertebræ of the skull. By a still more extended development of the spinous process to *spinal laminæ* (or spinous leaves), and at the same time, as already mentioned, a disappearance of every outward prominence, every node, every apophysis, the upper part of the cranium,—the so-called calvarium, or *brain-pan*,—thus acquires that smooth and rounded shape which is the adornment of the human head.

Corresponding to the spinous process is the *frontal bone* of the anterior vertebra, that large osseous lamina reaching to the sockets of the eyes. Although originally consisting of two lateral halves, it unites, in most persons, at an early period in life, and becomes a uniform piece of bone. Only in isolated cases,—

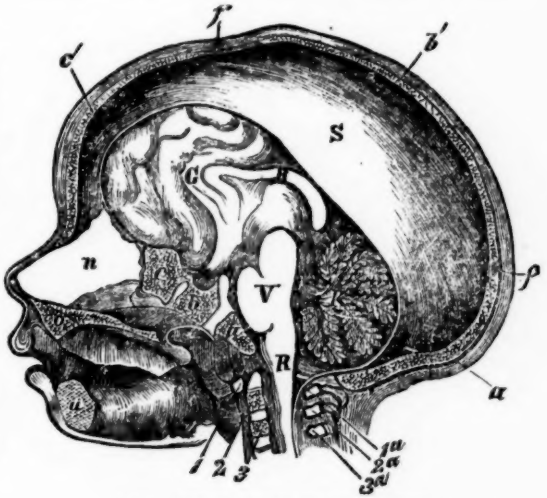


Fig. 3.—Infant's Skull, showing interior.

with the so-called cross-heads,—it sometimes remains open through life. The latter case is, nevertheless, the rule with the spinal laminæ of the central vertebra, which occupies the crown of the head and the sides, and for that reason bears the name of *parietal* or *vertical bone*.

As a rule, therefore, the skull-case of a grown man (and the higher vertebrate animals) consists of four spinal laminæ, of which two belong respectively to the anterior and posterior vertebræ, and two to the central vertebra. All four join each other very closely; are, however, bound to one another by *sutures*,—that is, by

firm masses of filaments. While the squamous bone of the occiput becomes, at an early age, inseparably united with the arches of the occipital vertebra by the ossification of their cartilaginous union, the frontal and parietal bones usually remain separated from their arches through life, disconnecting sutures forming on the borders of contact. Easy as it is now, by separating the divisions of the skull, to see the actual connection of the several parts of the occipital vertebra, it was once most difficult to discover those bones which must be considered as the arches and bodies of the frontal vertebra.

In order to understand this relationship we must first exclude from consideration all the bones of the face proper, for these as little belong to the skull as the ribs and pelvis are component parts of the spine. The bones of the face, especially those of the upper and under jaws, are only attachments of the skull vertebræ, being perfectly separable from them. They represent a special system, which is, indeed, one of highest value for the scientific and artistic consideration of the head.

It must further be taken into consideration that what is the forepart in the vertebral column is, in the skull, the under part, and *vice versa*; what forms the posterior part in the spine, in the skull lies at the top, and partly to the front.

The different positions are seen if we examine a vertical section of the head of a new-born child, divided, near the median line, through the head and neck (Fig. 3). We immediately recognize in it the direct connection of the spinal cord (R) with the pons varolii (V), and through it with the great and small brains (G and K). We see further how the mass of the brain, in its full development,* suddenly takes on a development necessitating an increase of space in the highest degree remarkable. The spinal or vertebral canal, therefore, expands when beyond the great occipital orifice, and the widely arched skull-cap adapts itself to the rather narrow and symmetrical vertebral column.* On the skull we distinguish, as already said, the roof and base of the skull,—the first being formed by the occipital squamous bone (a^1), the parietal bone (b^1), and the frontal bone (c^1), which are connected by sutures (f and f^1). In order to find the vertebral bodies, appertaining to the above, we must direct our attention to the base of the skull. Here we see first of all, in an easily recognized form, the body of the occipital vertebra (a). In front of it, and separated in children by a layer of cartilage, we find the body of the middle cranial vertebra (b), which in new-born children is only imperfectly separated by intermediate cartilage from the bodies of the frontal vertebra (c). In front of this we see a large cartilaginous mass (n), which reaches on the one side to the base of the skull, forming here the ethmoid bone, and serving on the other side as the groundwork for the formation of the partition wall of the nasal cavities. The latter reaches to the upper jaw (o), which faces the nearly isolated lower jaw-bone (u), and the inferior maxillary.

On this figure, which discloses to us the essential components of the facial skeleton, we are more especially interested in the position of the bodies of the frontal and parietal vertebræ. How was it possible to overlook, for so long a time, a relationship apparently so clear? This is explained by two reasons. Formerly it was not customary to bisect the skull in the manner here described, and then not only prejudice, but also the consideration of preserving the total connection of the bones, had to be put aside.

* The cerebrum consists of two lateral halves, called hemispheres. They are united in the middle by the corpus callosum (B), and parted by the falciform process (S), a fibrous membrane which presses in between them (Fig. 3).

* The figure is taken from Virchow's "Untersuchungen über die Entwickelung des Schädelgrundes im gesunden und kranken Zustande, und über den Einfluss derselben auf Schädelform. Gesichts bildung, und Gehirnbau." Berlin, 1857.

In plate 3, the numbers from 1 to 7 indicate the three uppermost cervical vertebræ, those from 1a to 3a, the spinous processes, belonging to them. Between the bodies is to be seen the intervertebral cartilage.

Again, the true relation was to be seen only in the skulls of very young children, being obliterated more and more with each year of life, so that at the age of maturity it is hardly distinguishable. In the adult we no longer find distinct and separate vertebral bodies, but a single connected bit of bone, the nape or nuke bone (ostribasilare) which has arisen from the cohesion of the bodies of all three skull vertebræ. Till about the twentieth year the body of the occipital vertebra remains still separated by cartilage from the other parts, and its importance was consequently less mysterious. On the other hand, the consolidation of the anterior vertebral bodies takes place at so early an age that they have been considered, from of old, under the common name of the *wedge* or *sphenoid bone*, as a single and inseparable piece of bone. But modern science has taught that the anterior sphenoid (c) is the vertebral body of the frontal bone (c^1), the posterio-sphenoid bone is the vertebral body of the parietal bone (b^1). The connection between these parts is made by special "wings," which again correspond to the arches of the ordinary vertebra. In this manner the whole skull can be conceived as being composed of three vertebral rings, placed one behind the other, and closely connected.

The disclosure of this relationship, in itself so simple and yet so mysterious, rests entirely upon the progressive views gained in the "history of development." This science is still in its infancy. Even the method of the thought, the special direction of observation through which it was created, was quite hidden from antiquity and the middle ages. Its discovery is due to German inquiry; and, remarkably enough, one of the immortal services of our greatest poet. Incited by Lavater's physiognomical studies, Goethe had turned his attention to the study of anatomy, and during many years of persevering labors he acquired great insight into the fundamental processes of organic life. The poet sought, as he himself has said, "the idea of the animal"; and behold, what had till then remained closed to all, revealed itself to the "prophetic eye" of such an investigator. An accident, it may be said, gave the conclusion to his thoughts. One day, while on his second Italian journey (1790), when visiting the Jewish cemetery in Lido, his attendant picked up from the sand a fractured ram's-head, the single parts of which could still be recognized. "I had then," says Goethe, "the whole in its most universal completeness."*

Subsequently the priority of discovery was disputed. The first conception was ascribed to the old magician (Bishop of Ratisbon), Albert the Great; again, the honor was given to the celebrated physician, Peter Frank. I have proved, in another place, that this is not so. The only person whose claims have any importance whatever is Goethe's younger contemporary, Oken, the renowned Jena, anatomist and zoologist. But he himself has given August of the year 1806 as the date of his discovery,—when, on a holiday journey in the Hartz Mountains, he slipped down on the steep sides of the Ilsenstein, and suddenly saw at his feet "the most beautiful bleached skull of a hind." "Lifted up, turned round, looked at, and it was done. It is a vertebral column! The revelation flashed like lightning through bone and marrow! And since that time the skull has been a vertebral column."

Oken has incontestably the merit of first working out his thoughts scientifically, and bringing the discovery to general recognition. But it is not true that it was *first* revealed to him; and though it is certainly a remarkable coincidence that, in both cases, an accident of a journey should place the decisive object before the eyes of an already ripe investigator, there will still remain with the ram's-head the honor of being instrumental in discovering the "theory of the vertebrate skull."

(*To be continued.*)

* See Virchow's "Goethe als Naturforscher." pp. 61, 102.

LANGUAGE.—No. 6.

RISE AND PROGRESS OF THE ENGLISH LANGUAGE.

THE English language is a composite one, being made up of a mixture of German, Saxon, Danish, French, Greek, and Latin elements. Britain was originally settled by a people called *Gaels* or Gauls, or more properly Celts. They came from a country at that time called Gaul, but which is now called France; and their language was termed Gothic or Celtic, one of the most ancient languages in the world. The Celts are said to have been descended from Gomer, the son of Japheth, the eldest son of Noah. At the time of their settlement in Britain, their language was an unwritten one, for when Julius Cæsar invaded the Island about half a century before the Christian Era, he found the inhabitants ignorant of letters and destitute of any history except oral tradition, which was mostly in the hands of their priests, the Druids, and which had been made into verse, and transmitted from one generation to another in the form of odes or songs; a practice which has already been alluded to.

The only thing which can extinguish or essentially change a language is conquest. The language of the Celts was in time almost wholly obliterated by the successive invasions of other nations. The Romans under Julius Cæsar made the first conquest of the Island of Britain. They were in possession about 500 years, and left there in the year 446, without having been able in five centuries to impress their language and customs upon the native inhabitants sufficiently to change to any appreciable extent their original tongue. The first invasion which wrought any permanent change in the language of the Island was that of the Saxons. The Saxons entered Britain in 449. About the same time came also the Angles and the Jutes. These all came from the same quarter of the world—from the continent of Europe. Of the Jutes and their dialect but little is known. Their number was small, and their influence upon the common speech of the country, then in the formative stage, insignificant. The Angles seem to have been a people even more rude and barbarous than the Saxons; they were fierce, warlike, and enterprising; and by reason of these qualities—qualities which have since made their descendants the virtual masters on both land and sea—they, although few in number as compared with the Saxons, succeeded in fixing their own name upon the conquered territory, which was now called *Angle-Land* and from which is derived the modern designation—England. The languages of the invaders were, both of them, dialects of the Gothic or Teutonic, and their amalgamation formed the Anglo-Saxon.

Next came the Dane, who contributed his share toward the formation of the national tongue, and lastly, the Norman. The great body of the language, however, after the invasion of the Saxons and Angles, was Saxon-English, or as it has usually been termed, Anglo-Saxon, and such it continued to be for a long period afterward, notwithstanding the additions and alterations made by the incorporation of Danish and Norman elements subsequently. These changes in the language of the Island were very gradually made. The Norman appears not to have mixed with the Anglo-Saxon very readily at first. The court of the conqueror, as also the courts of his descendants for many successive reigns, heard and spoke but little Saxon-English. This was owing to the fact that the nobility endeavored to mark their rank by the employment of a language differing from that of the common people; that is, a tongue made up in large proportion of Norman French, as compared with that in use among the people generally, and called, by way of distinction from the latter, the King's English. A difference of speech and a foreign accent thus became a mark of

aristocracy. But the lower orders, aping the manners of the higher classes, strove to imitate their mode of speaking, until finally the foreign element became thoroughly incorporated with the language heretofore in use, so that in time the speech of king and subject, noble and plebeian became everywhere the same, and was henceforth known as the English language.

In the meantime the ancient Celtic has been almost wholly extinguished, and exists now only in certain dialects of that tongue, sometimes heard in Wales, in the Highlands of Scotland, and in certain parts of Ireland; and even in these localities it is rapidly dying out.

The language of Great Britain had now become the English language. This was about the middle of the thirteenth century. A short proclamation issued in the year 1258, in the reign of Henry III., is usually regarded by philologists as the first specimen of purely English composition as distinguished from Semi-Saxon. Yet Dr. Johnson declared that the English of any period during the thirteenth century, the best of it, would scarcely be intelligible to modern readers. He called it a kind of intermediate diction, neither Saxon nor English. In his opinion, Sir John Gower, who wrote in the latter part of the fourteenth century, more than 100 years after the issue of the proclamation above alluded to, was the first British author who could properly be said to have written English. Contemporary with Gower was Chaucer, the father of English poetry.

It is interesting to trace our language through the various stages of its progress and development from the end of the thirteenth century down to modern times. Edward III., who reigned from 1326 to 1377, was the first sovereign to encourage English composition. He himself set a good example by making English the language of his court, and by discontinuing the Norman in all law proceedings. During his splendid reign there was a revival of Anglo-Saxon genius, and the English language began a vigorous growth. After having passed through so many successive periods of amalgamation it needed constructing anew. The English language has been highly favored with minds of rare eminence, that have brought out the inherent power and vitality of their native tongue. In each period of its growth, authors of grand and varied styles have given it transparency and copiousness. They arrayed it in garments it had not before worn, as in their fertile brains ideas germinated which were not stirring the minds of the masses, as in their souls spiritual cravings started up which were unfelt by others. Chaucer was a living worshipper of nature, and left the language wealthier in descriptions of natural objects. He was followed by a vast assembly of poets who have consecrated it as a temple in which to pour forth great jubilees of song.

In the Elizabethan era of the sixteenth century, words by thousands were naturalized, and the language was endowed with rare powers of intellectual and spiritual expression. Spenser, with his exquisite fancy and creative genius, drew out its fine musical harmony and the unsuspected richness of its diction. Shakespeare, the myriad-minded, developed and improved the art of bodying forth visions of the imagination, and of revealing internal and immortal conceptions to a perfection before unknown, and which has not been equalled since. Milton gave an example of the solemn awe with which our language could be marshalled into verse to unfold a drama which has human life for its first scene, immensity for its theatre, and eternity for its conclusion.

Thus by the minds and works of poets was this rough, rude, and imperfect implement refined and polished until it mirrors forth in all their delicacy the emotions that fill and agitate the human breast. Bacon and Locke, earnest seekers after truth in natural and mental science, enlarged the phraseology of our language to explain and elucidate abstract reasonings and the gathered facts of observing and inquiring minds. After these followed on Addison, Johnson,

Goldsmith, and all the brilliant essayists, satirists, wits, historians, and reformers of that period who contributed largely to exhibit its keen-pointedness, its sharp outlines, its fertile versatility, its pliant adaptedness, bold simplicity, and strong dignity. These were the methods and these the means by which our language, harsh and uncouth at first, was at length brought to its present high state of excellence and development, gradually winning its way by its own inherent merits and by the richness of its literature, until now it takes rank with the foremost living tongues of the civilized world. "The English language"—observes the eminent philologist, Prof. Grimm,—"possesses a power of expression such as never perhaps was obtained by any human tongue. Its altogether intellectual and singularly happy foundation and development, have arisen from a surprising alliance between the two noblest languages of antiquity, the German and the Romanesque, the relation of which to each other is well known to be such, that the former supplies the material foundation, the latter the abstract notions." . . . . "In richness, sound reason, and flexibility, no modern tongue can be compared with the English. Not even the German, which must shake off many a weakness before it can enter the lists with the English."

The vocabulary of the English language contains at present about 100,000 words, of which the one-half are of Saxon or Anglo-Saxon origin. About one-half of the remaining half are from the Latin and the modern German; leaving still one-quarter of the whole number to be divided between those of Greek and those of French extraction, including also about thirty words from the Celtic, and a few from the Danish and various other tongues. The names of most of the objects of sense, concrete and perceptible things, the terms which occur most frequently in ordinary conversation, are Anglo-Saxon. Thus, for example, the names of the most striking objects in visible nature, as the *sun*, *moon*, and *stars*, are Anglo-Saxon. From it too we derive the terms which are expressive of the affections, and of the nearest and dearest relations; such as—*father*, *mother*, *husband*, *wife*, *son*, *daughter*, *brother*, *sister*, *child*, *kindred*, *friends*, *home*, etc. Almost all general terms expressive of abstract ideas are from the Latin, while special ideas are expressed in Anglo-Saxon. Thus, *crime*, *color*, and *motion* are from the Latin, but the different species of crime, as *theft*, *murder*, *lying*, etc., the different kinds of color, *white*, *blue*, *red*; also *run*, *slip*, and some other kinds of motion, are from the Anglo-Saxon. *Swine*, *ox*, *calf*, and *sheep* are Saxon; but *pork*, *beef*, *veal*, and *mutton* are Norman French. As long as these exist as mere animals, each is called by its Saxon epithet; but when they become matters of enjoyment and luxury, then each takes on a French name. "The superiority of Saxon-English, or rather of Non-Latin-English," says Mr. Herbert Spencer, "consists in its comparative brevity and greater flexibleness. A child's vocabulary is almost wholly Saxon. He says, '*I have*,' not, '*I possess*'; '*I wish*,' not, '*I desire*'; he does not '*reflect*,' he '*thinks*'; he begs not for '*amusement*,' but for '*play*.' He calls things '*nice*' or '*nasty*,' not '*pleasant*' or '*desirable*.' Those words which are employed to designate rank or official station, titles, etc., such as *earl*, *chief*, or *marquis*, as also the names of articles or things in use among the wealthy and refined, such as *bureau*, *toilet*, *escritoire*, *parlor*, etc., are of French origin. The Latin contributes largely to the language of polite literature, and furnishes most of the terms used in the arts and sciences."

Of the vast number of words of which our vocabulary consists, it is surprising how few are in general use. To the great majority of even educated men, three-quarters of these 100,000 words are almost as unfamiliar as the words of the Greek or the Choctaw languages. It has been calculated that a child uses only about 100 words, and unless he belongs to one of the educated classes, he will

never perhaps have occasion to employ more than 300 or 400. A distinguished American scholar estimates that persons of fair average education and intelligence use not over 3,000 or 4,000 words, while few speakers or writers employ as many as 10,000. Even Milton, whose wealth of words seems amazing, uses but 8,000, and the all-knowing Shakespeare only 15,000 words.

The English language, although arrived at a high degree of refinement, is, however, in its orthography, and in its written representation, almost in the primitive ideographic stage. Its written words are symbols of ideas rather than of sounds, and it is only after long, severe, and harassing practice that the learner can be sure of associating the right sound with the right sign. The English alphabet, to begin with, is both defective and redundant. It is defective in the means of representing certain sounds; and redundant in that the same sound may be represented by two or more of its characters, sometimes the one, and sometimes the other of which is employed in a manner that savors of caprice. Yet imperfect as is our alphabet, our method of employing it in the spelling of words is, in other respects, much worse. The symbols composing it are used in such various senses, that the mind of the learner becomes perplexed. Digraphs must be treated as single letters, quite as much as the single letters themselves; for they have not the value of a combination of letters, but of one letter only. One philologist of some note declares, that, viewed in this light, the English alphabet will be found to consist not of twenty-six letters alone, but of more than 200! and that almost every one of these 200 symbols varies its meaning at times. In fact, we violate every principle of a sound alphabetical system more outrageously than the people speaking any other tongue whatever. Our written characters do not correspond to our articulations, and our spelling of words can not be matched for irregularity and caprice. As an example of the same spelling with difference of pronunciation, take the words *bough, cough, hiccough, tough, though, through*, and *ought*. Of the same pronunciation as the last word, but spelled differently, is *aught*; but in *draught* we get a different pronunciation, and in *draft* again, a different spelling. So too in *rough* and *ruff*. But a better example of the latter, that is of the variety of ways of representing the same sound, is to be found in certain words in which the vowel sound heard in their pronunciation is that of "*I*"; for instance, *eye, by, lie, height, night, rhyme, stye, guy*, and *life*. These orthographical difficulties beset the pupil at the very commencement, and if it be a child, it soon loses confidence in itself, and begins to rely upon the teacher, to the prejudice of its logical faculties if it possess any.

It may be asked just here: "How did such an unfortunate state of things come about?" That is easily explained. The inventors of the first alphabet, the Phœnicians, made it, as far as they were able, on phonetic principles. Although it seems not to have been perfectly phonetic; for perfection is a quality we can scarcely expect in any performance of the human intellect; yet it was more phonetic than any of the alphabets which have succeeded it. The Greeks obtained the alphabet from the Phœnicians, making some changes and some additions thereto. If the Phœnician characters did not represent the spoken sounds of their own tongue with entire accuracy, they certainly represented those of the Greek much worse. The Romans adopted from the Greeks the alphabet thus changed and enlarged, making in it a few unimportant variations, notwithstanding which it still remained very inadequate to the representation of the Latin. Finally, to make the recapitulation of what has previously been said complete—the Northern hordes of barbarians who came down like locusts upon the Roman Empire—all except the Sclavonic tribes, who appear to have had alphabets of their own, seizing upon Roman letters among the other spoils with which they loaded

themselves, violently contorted them to the representation of languages which differed greatly from the Latin, both in the number and quality of their elementary sounds. Each tribe or nationality used the Roman alphabet after its own fashion, and the variety of methods thus introduced was, as may be supposed, very great. The English language being a composite one, made up of words and variations of words and elements drawn from other languages, the mode of spelling and writing each word was taken along with the word itself from the language from which the latter had been derived. Custom sanctioned the abuse, and at the present day we have a mode of spelling so far removed from any apparent attempt to represent the sounds of speech, that we should scarcely have guessed there had ever been any intention of doing so had we not known its history. The present alphabet, considered as the groundwork of a system of orthography in which the phonetic principle prevails, is a complete failure.

Philologists, as well as other learned men, have long been aware of the absurdities of English spelling, as well as the inadequacy of the present alphabet to represent the elementary sounds of English speech, and some attempts have been made to remedy both. There are two ways in which improvement could be made. The one is to make better spelling with the alphabet we have, make our spelling more phonetic, abolishing all such absurdities as *p-h-t-h-i-s-i-c—tizic*, *s-l-e-i-g-h-t—slite*, and the like. This improvement, as will be seen, relates to the spelling alone, and attempts have already been made in this direction by our lexicographers. Dr. Webster in leaving out the "*u*" in such words as *honor*, *labor*, *favor*, etc., has done something toward simplifying our spelling. Another change which he made was the reversing of the relative positions of the vowel and consonant in the last syllable of such words as *metre*, *theatre*, *nitre*, etc., making them to stand thus, *meter*, *theater*, *niter*, etc.; but he did not carry this reform to its logical conclusion. In the classification of the letters of the alphabet *l* and *r* constitute a division by themselves, and are termed *liquids*; and any orthographical rule which applies to either one of these two letters applies also to the other. So if there is any good reason for making the change he did in the spelling of the words above given, the same reason exists also for making a like change in the spelling of such words as *bible*, *rifle*, *apple*, etc., and these by the same rule should be spelled *bibel*, *rifel*, *appel*, and so on. It is true that in words of the latter class in which *l* is the consonant which precedes the final vowel, the orthography does not seem to us to be so anomalous as in the case of words of the former class in which its cognate *r* is employed, but we think that this arises from the fact that the words of the latter class are so much more numerous than the others, that we have become more accustomed to seeing that style of spelling in the one case than in the other, and have thus become more familiarized with it, and in a manner reconciled to it.

The other method of improving the orthography of the language contemplates a more radical reform, no less than the making of a new alphabet which shall, with more accuracy than the present one, represent the elementary sounds of speech. This is going back to first principles, recurring to the idea of the inventors of the first alphabet from which, in course of time, we have so far departed. It would revolutionize the entire written representation of the English tongue.

More than fifty years ago a Cherokee Indian, by name *See-qua-yah*, or in English, George Guess, invented, for the representation of the dialect of his own tribe, an alphabet which was almost perfectly phonetic, and which was in every way a complete success. The history of its invention and the circumstances which led to it, as related by the inventor himself, showing the analogy between the mental processes of this unlettered savage and the different successive phases which

writing was made to assume by the ancients in their attempts to form a written language, as also the close resemblance between the final results in the two cases, make a narrative of exceeding interest.

At the time of St. Clair's defeat by the Indians, a letter, by some means, fell into the hands of the latter, which, when the purpose and functions of such a document became known, greatly excited their curiosity. In their deliberations respecting it, the question arose, whether the power of the *talking leaf* was the gift of the Great Spirit to the white man, or the discovery of the white man himself, without such supernatural aid? Most of the Indians were of the former opinion, while a small minority, among whom Guess stood prominent, maintained the latter. Some time afterward he had an attack of white swelling in his knee, which resulted in a shortening of the diseased limb, making him a cripple for life. Deprived now of the excitements of war and the pleasures of the chase, in the long days and nights of his confinement, his mind reverted to the mystery of the *speaking sheet*, and he thought he would try to see if he could not himself find out a way of making a leaf or sheet of some kind that would talk. So, taking a piece of bark and his hunting-knife, for he was, as yet, ignorant of pens and ink, he set resolutely to work. He first made pictures of different objects, to convey the ideas of his own mind to others: the hieroglyphs of the Egyptians. He soon abandoned this method, however, as too difficult or impossible. He then tried arbitrary signs, as those had done. This was the ideographic stage. But these signs soon became so numerous that he was forced to eliminate the greater part of them; and when he had gotten their number reduced to about 200, he thought his task was nearly accomplished. But still this was not altogether satisfactory, and he now began to pay more attention to the sounds of speech, and by doing so he was able to make a further reduction in the number of his signs to eighty-six. He was here passing rapidly over into the phonographic stage. The thought now struck him to endeavor to ascertain, as accurately as may be, the simple elementary sounds of the Cherokee tongue, and then to make a sign for each of them, and for them only. He had now taken the last step in the progress; that is, from ideography to phono-graphy; had fully accomplished the last stage in the mental process, and it only remained for him to carry it out in practice. His own ear not being remarkably discriminating, he called to his aid the more acute ears of his wife and children, from whom he derived great assistance, especially from a daughter that he had, who seemed to enter into the genius of his labors. An alphabet of *sixteen* letters was now formed, and the invention was complete.

Here, then, we have a North American savage in his wigwam in the wilds of the great West, with nothing but a few pieces of bark and his hunting-knife, constructing an alphabet of his own tongue on philosophical principles, passing, in a few months, through all the mental processes of the invention, processes exactly similar to those of the ancients, but which it required them centuries to execute, and by a like analysis resolving vocal speech into its ultimate elements, and arriving, at last, at the formation of an alphabet of letters, few in number, but representing these elements with phonetic accuracy. The most remarkable fact in the history of this affair, is the correspondence in number of the Cherokee alphabet with that made by the Phœnicians; for that, as we have already stated, consisted originally of only sixteen letters, the others being added subsequently by the Greeks. Now, we do not presume that there is any similarity between the language of the ancient Phœnicians and the Cherokee dialect; but in the making of the two alphabets, this correspondence shows an agreement between the two parties in regard to the number, at least, of the simple elementary sounds of human speech.

In the year 1835, Mr. Isaac Pitman, of Bath, England, invented a system of

shorthand writing, entirely phonetic, and which he called Phonography or *Sound-hand;* that is, writing by sound. This was completely successful, and has now, for the most part, superseded all other systems of stenography. This suggested to Mr. Pitman the idea of an alphabet made on phonetic principles for the ordinary purposes of writing and for printing—Phonotypy. So he constructed an alphabet, made up partly from the alphabet at present in use, some of the characters changed a little; others without change, and the addition of some new characters. He now issues books and pamphlets printed in the new style. This gave rise to an agitation of the subject in England, which still continues, and is increasing. It has also extended to this country, and phonetics have, of late years, formed the principal topic of interest and discussion at the annual meetings of the American Philological Association.

Other phonetic alphabets have also, since, been constructed here. The main difficulty in the way seems to be the want of agreement as to what are the elementary sounds of our language and the number of them. Their number is variously given at from thirty-eight to forty-two, according to the views of the enumerator.

In the construction of a new and better alphabet, there are a few important points to be considered and kept steadily in view:

1st. The true and only office of alphabetic writing is to represent faithfully and intelligently the sounds of speech.

2d. The correct ideal of an alphabet is one in which every sound shall have its own unvarying sign, and every sign its own unvarying sound.

3d. No language has ever yet had, or is ever likely to have, a perfect alphabet.

4th. An alphabet intended for general use should not attempt to represent the minute shades of difference in the utterance of vocal sounds. This would be impracticable at any rate, in view of the fact that these sounds vary in different localities; but a better alphabet would doubtless tend to a greater degree of uniformity in this regard.

5th. The Roman alphabet has now become so widely and firmly established among the civilized nations of the earth, that it can not be entirely displaced; therefore in the making of a new alphabet, as many of the old characters should be used as might be found available for the purpose.

An altered orthography, no matter how great its superiority over that at present in use, would, no doubt, be offensive to most people at first. But this is inevitable. Besides, it is the history of all reforms when first introduced. We feel quite sure, however, that could a new system of alphabetic writing be devised, phonetic in principle, and at the same time sensible and consistent, one possessing real inherent merit, it would, in a reasonable length of time, win the hearty preference of the mass of readers.

At the centennial convention for the improvement of the orthography of the English language, held at Philadelphia in 1876, Mr. Towe, principal of a grammar school in Norfolk, Va., in speaking of the capacities of the colored race in the acquisition of knowledge, said: "They spell naturally, in the simplest manner, and can not be persuaded that silent letters have any use. They spell *frend, fotograf*, etc., and will not use the irregular forms of our present spelling. It would be greatly to their advantage to have a revised system of spelling. It would greatly add to the facilities of education, which the colored people need so much." Another delegate to that convention, Rev. Mr. Robertson, missionary to the Creek Indians, whose dialect is much the same as that of the Cherokees, and from whom they have learned the phonetic alphabet of George Guess, said: "The young Creek Indians learn more during the one day's preaching in Sunday-school, by the aid of their phonetic alphabet, than the children of the missionaries learn during all the rest of the week by means of the ordinary English spelling. A pupil has been known to learn to read phonetically

in one day." Mr. S. V. Blakesly, for twenty-one years an editor on the Pacific coast, though not present in person at that convention, in writing to it, expressed the conviction that no subject in science or art more important than that of orthographic reform, had come before the world within the last half century. And such seemed to be the general opinion among the delegates.

An improvement in our English orthography would, no doubt, enable hosts of the ignorant to learn to read books and periodicals, and immensely facilitate the acquisition of our language by foreigners; and without an item of injury to our literature, would also greatly contribute to the intellectual advantages of all our people.

JAMES COULTER LAYARD.

BLARNEY CASTLE AND THE BLARNEY-STONE.

WHO has not heard of the "Blarney-stone"? — allusion being often made to it, when one is speaking of a person who possesses readiness of tongue. The Blarney-stone is related to one of the most interesting ruins of Ireland, the Castle of Blarney, which is situated about five miles northwest of Cork. The neighborhood, however, has a history much older than the castle, for in the early ages, two thousand or more years ago, it was a place of importance to the Druids. There those semi-barbarous people performed their strange rites, and relics of their worship remain still.

The castle was built in the year 1449, in the midst of a fertile valley on the banks of the Comaun, a small stream. Evidently it was intended to subserve an important purpose of defence in those stormy days, as may be inferred from the great thickness and strength of its walls. Several times it was the centre of sanguinary conflict. In 1643 it was besieged and taken by Lord Broghill; after the Restoration, it sustained a siege by the army of William, and was then in a great measure demolished, together with other fortifications that were originally very extensive. Little indeed was left intact, save the walls of the large tower or donjon that rise about 120 feet above the ground, and form a very prominent feature in the landscape. Attached to it is the well-wooded demesne, comprising a mirror-like lake and the "Sweet Rock Close." Although the place has its picturesque attractions, including the stream, and the lake, and tower, and the little town near, yet the chief point of interest for the visitor centres in the stone, that, to use the language of Father Prout in his "Plea for Pilgrimages," "is endowed with the property of communicating to the happy tongue that comes in contact with its polished surface, the gift of gentle insinuating speech, with soft talk in all its ramifications, whether employed in vows and promises light as air, such as lead captive the female heart, or elaborate mystification of a grosser grain, such as may do for the House of Commons—all summed up and characterized by the mysterious term 'Blarney.'"

The southern and eastern sides of the tower are surmounted by parapets having numerous openings, and several small chambers, closets, and dormitories occupy the north side from base to summit, and are reached by a very steep, narrow, winding stair. On top, the wall is broad enough to make a good foot-path; and that part of it where the famous stone is to be seen, is held in its place by irons. In order to reach it one must lean out through an opening between two and three feet wide; and the visitor who has no assistance, can not expect to secure the mystic influence, by an application of his lips to the stone; to attempt that would be to fall headlong down. One who ascended the tower and surveyed the prospect that it commands, says: "There is no door left in it from the

foundation to the top; I cautiously crept to the edge of the wall, and while the sides of the old castle seemed to sway to and fro, I reached out to the parapet and touched the stone with my finger tips; this is as near as I ever got to it; but I have had enough. There is a stone downstairs on the ground floor which is far more convenient, and is usually substituted for the original."

heath-blossoms here and there distributed over it, that appear as if they were natural products of the soil. There are shady retreats that command very pleasing views of the neighborhood. Other objects of interest to the tourist are pointed out; for instance, a flight of steps, roofed in by massive stones, that leads down to the "inch" or island, washed by the waters of the Comaun. This is known as the

Blarney Castle.

For more than four hundred years this castle has been the sole feature of importance, in a cheerless, though lovely landscape. At the base of the tower we find the prisons, two gloomy, ill-ventilated halls; a little to the west of the donjon is the cave, a low, dark, subterranean passage; in the immediate vicinity of the castle is the Rock Close, an area of a few acres of ground, tastefully laid out, with numerous rocks covered with lichens and "Witch's stairs." Adjoining it is the "Witch's kitchen." On the island stands a cromlech of immense size, covered by a luxuriant growth of moss and lichens. This is a relic of the ancient Druid worship, a form of devotion supposed to have been derived from the Phœnicians. The ancient Celts probably sacrificed to Baal; and here on this altar offered up their victims, a thousand years or more before the foundations of the castle were laid.

ROBIN AND THE PHRENOLOGIST.

THE following sketch by Mr. W. Cross is not only characteristic of the rural Scotsman, but will illustrate the conduct of uneducated people generally when attempting to look into some matter of science. They are surprised, perplexed, doubtful of the evidence of their own senses, and naturally go away dissatisfied:

Robin having been advised by a friend to get his head examined by some phrenologist, at once resolved to adopt the suggestion, and accordingly took an early opportunity of paying a visit to a celebrated lady who made a profession of giving analytical delineations of character, and was generally admitted to be pretty correct in her observations. When Robin called at her lodgings he was shown into a handsomely furnished apartment, where for some time he had no company but that of a few poets, philosophers, and criminals in stucco. At length the scientific lady entered, accompanied by a young man, who acted as her secretary. Bowing to her visitor, and waiting for a moment to give him an opportunity of stating his business—of which, however, he did not avail himself—she said: "I suppose, sir, you wish to have a chart of your phrenological developments."

"I'm no' very sure, mistress, what ye mean by that; but if it's onything aboot the charter, I may tell you just at ance, that I'm no' a Chartist ava. I hae brocht a guid lump o' a head here to see if you can tell me what's in't; sae, if you please, just say awa'."

The lady advanced pretty near to Robin, and, taking a close survey of his appearance, said, "You are rather of a sanguine or sanguine fibrous temperament, I see"; and, turning to her amanuensis, she directed him to put down:—"sanguine 5, fibrous 4."

"I ken," said Robin, "I hae a temper o' my ain, but I dinna see hoo I can hae nine o' them—five o' ae kind and four o' anither."

"You mistake me, sir," said the phrenologist; "it is *temperament*, not *temper*, that I spoke of."

"Weel, I'll be hanged if I can understand the difference."

"Your reflecting organs are less fully developed than those of the knowing and observing faculties."

"Organs! I ne'er was sae hypochondriac as to think I had onything like an organ in my head."

"What is meant by an organ in phrenology is not the musical instrument of that name, but distinct portions of the brain."

"Ou, I see; maybe what ye micht ca' whussles rather than organs."

"You are remarkably full in the basilar region."

"The ashiler region?—that should surely be something guid. I ken that what's ca'd ashiler wark in building is just the verra best. Rubble wark is what they use for gavels, back wa's, and back jams; but naething but the front is ashiler."

"You don't seem to comprehend what is meant by the basilar region."

"What does it mean, then?"

"It signifies the lower portion of the brain, and is the seat of the animal propensities."

"The animal propensities! Ye dinna mean to say that there's ony animals in my head?"

"Not *that*, but animal propensities feelings which animals possess as well as men."

"Ou ay, I see ye noo. Weel, I daursay ye're richt, for I ken I hae a guid deal o' the cuddy in me when I'm straikit against the hair—but what mak' ye oot o' them?"

"Why, sir, I should say that you will be very ardent in your attachment to the fair sex, for you have amativeness large."

"Ye're aff yer eggs there, mistress; for except Jean Brown (I mean a lass that ye ken naething aboot) I wadna gie a smoke o' tobacco for a' the women 'twixt this and Jerusalem."

"The organ is large, however. Thomas, you may put down seventeen."

"Div ye mean to tell me to my face that I rin after seventeen o' them?"

"No, no, it is the relative size of the organ that the number denotes."

"Weel, that's just Greek and Latin to me; but ca' awa'."

"Your concentrativeness and adhesiveness are small. Thomas, you may put them down at thirteen."

"Tharteen! that's a gude pickle, I think. But I reckon there's no muckle difference aboot them. At least, for my pairt, I dinna see what's the use o' sae mony odds and ends in a body's head. But what's next?"

"Destructiveness. This is about the average size."

"Weel, what dae ye make oot o' that?"

"A strong feeling of resentment, and a disposition to crush opposition. Even something of cruelty will arise from this, unless checked by benevolence."

"Fegs, I hae plenty o' that; but as for cruelty, it ne'er was laid to my charge, except maybe when I was a thocht owre keen to get tryin' my hand at bluidin' horses, stickin' kye, or killin' swine. But what mair?"

"Your large destructiveness, with rather a small development of love of life, might make you apt in a desponding moment to commit suicide."

"Me! I wadna commit suicide on a doug. Na, na, mistress; ye're clean wrang there. But what bit are ye at the noo?"

"Combativeness. Very large. You may put down eighteen, Thomas."

"Ay, what's combativeness for?"

"It inspires courage, and is the quality that makes men capable of fighting."

"Weel, I was thinkin' sae. But I jalouse guid fechtin' depends mair on big neives and braid shouthers than onything aboot the head. To be sure, if a body was a tup it would be different. Tups have a desperate power in the head.

"I think ye needna mind the rest o' my head, for I reckon the sack is like the sample, and I hae heard aboot as muckle as I can carry awa' at ance. Just say, then, what I'm in your debt, and I'll be steppin'."

"One shilling is the charge."

"Ay, the full charge for spaein' a' the head; but ye ken ye've hardly been abune the lugs wi' me, and ye must just charge accordingly. There's saxpence in the meantime, and when I come back to get you to examine the rest o' my head anither saxpence will clear scores betwixt us."

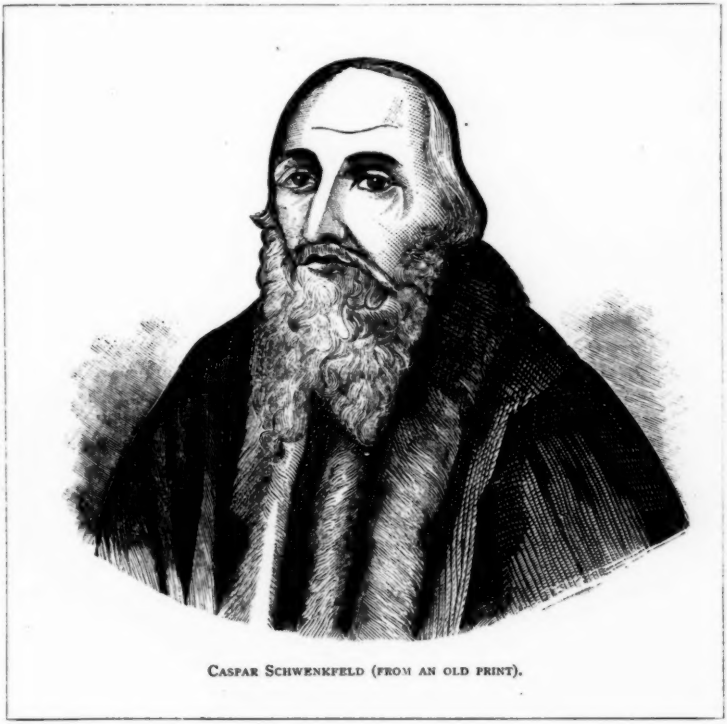
MY PORTION.

VERY little of gold have I,
Wealth and station have passed me by,
But something sweet in my life I hold,
That I would not change for place or gold.
Beneath my feet the green earth lies,
Above my head are the tender skies,
I live between two heavens; my eyes
Look out to where, serene and sweet,
At the world's far rim the two heavens meet.

I hear the whisperings of the breeze,
That sweet, small tumult amid the trees;
And many a message comes to me
On the wing of bird, in the hum of bee,
From the mountain peak and the surging sea.
E'en silence speaks with voice so clear,
I lean my very heart to hear,
And all above me and all around
Light and darkness and sight and sound
To soul and sense such meanings bring,
I thrill with a rapturous wondering.

And I know by many a subtle sign
That the very best of life is mine.
And yet, as I spell each message o'er,
I long and long for a deeper lore;
I long to see and I long to hear
With a clearer vision, a truer ear;
And I pray with the keenest of all desire
For the lips that are touched by the altar fire.

Patience! oh, Soul! from a little field
There cometh often a gracious yield;
Who toucheth His garment's hem is healed.



CASPAR SCHWENKFELD (FROM AN OLD PRINT).

THE FOUNDER OF THE SCHWENKFELDERS.

CASPAR SCHWENKFELD, a contemporary of Martin Luther, though less familiarly known, was, like that great man, a devoted laborer in the same great cause—the Reformation. He was born at Ossing, Principality of Liegnitz, Lower Silesia, in 1490. He was educated at Cologne, and dwelt for several years at other universities where theology early attracted his attention, and the writings of the Church Fathers became his favorite study. He afterward visited many German courts, and devoted some years to the culture which, in his time, was deemed to befit his rank, qualifying himself for knighthood, and for becoming a courtier. While still a young man, he entered the service of Carl, Duke of Münsterberg, at whose court he heartily embraced the doctrines of John Huss, which doubtless shaped his after life and labors. Bodily infirmities soon after unfitting him for knightly duties, he left the service of the Duke and became Counsellor to Frederick II., Duke of Liegnitz, whom he served in that capacity a number of years. Theology, however, had stronger attractions for him than affairs of state, and he formed the acquaintance of many theologians who were drifting in the direction of the Reformation. He withdrew from the ducal court, and was chosen a Canon of the Church. He was attracted by the preaching of Luther, after the latter had separated from the Church of Rome; and, coming to an agreement with him on the issues raised against that Church, he renounced his

Canonship, as he felt in conscience bound, and thenceforth for thirty-six years with voice and pen exhorted men to repentance and godliness.

Though naturally not inclined to controversy, he nevertheless stoutly maintained his views when controversy was inevitable, and hence he soon came to differ with the great Reformer on several doctrinal points, chief among which were those related to baptism, the eucharist, the efficacy of the Divine Word, and the human nature of Christ. Earnestly desiring harmony rather than polemic discussion, and hoping that an interchange of opinion would lead to an agreement, he sought a personal interview with Luther, and laid before him his views. They parted in friendship, but a subsequent letter in answer, closing with characteristic sharpness, proved his mission to have been fruitless.

Altogether, Schwenkfeld tended in his doctrines toward the practical rather than toward the mystical, while he placed much stress upon purity of heart and life, and less upon dogma and ceremony. He maintained that the former were greatly retarded by the then prevalent teachings of even the reformers, especially with reference to justification by faith, and the denial of free-will, and of the merit of good works. His life was one of unremitting toil. Besides preaching he carried on an extensive correspondence with men of learning and rank throughout Germany and Switzerland, and wrote many books and pamphlets, several editions of which were published —one in 1592 in four large quarto volumes.

A spirit of deep and fervent piety pervades his writings. His opponents accorded him the praise of possessing great learning combined with modesty, meekness, piety, and a loving spirit. He died in the city of Ulm, December 10, 1562, leaving a name unmarred by any charge save that of heresy, which had been raised partly on account of his distinctive doctrines, and partly in common with the other reformers.

The establishment of an independent church was never a wish of Schwenkfeld's, yet many clergymen, noblemen, and other learned and influential men in Silesia and throughout Germany embraced his views, and for a time his adherents (most of whom became such after his death) enjoyed the public ministration of the Gospel in many of the churches, not as a distinct sect, but as a part of the Reformed Church in its larger sense. But this prosperity was short-lived. State reasons alienated the favor of the Protestant princes, and thenceforward the history of the Schwenkfelders (first so called in derision), runs parallel with that of thousands of sincere worshippers of different faiths—the Pilgrims, the Quakers, the Huguenots, and the Moravians, who yearned for freedom from the bonds of religious tyranny. Ridicule, slander, and severe persecution were heaped upon them, and coercive measures applied to force them back into a faith they abhorred. To increase the horror of the situation, they were forbidden to sell their property, or under any pretext to leave the country, and severe penalties were threatened against those who should in anywise assist their escape.

Amid all these persecutions, without churches, without organization, robbed largely of their books, they had, for over two centuries, maintained their faith and their worship in the Fatherland until 1726, when upward of one hundred and seventy families escaped at different times by night, leaving behind them all their property except what they could carry on their backs, or trundle along on wheel-barrows, and found shelter under the ruler of a Saxon province. In 1734, by the advice of friends in Holland, and of earlier emigrants, about forty families, having sought and obtained permission from the sovereign of Great Britain to settle in the American provinces, embarked and landed at Philadelphia, on the 22d of September, subscribed allegiance to George II. the next day, and observed the 24th as a day of Thanksgiving. The anniversary of this day has been

regularly kept, with religious services, by their posterity for a hundred and fifty years, and its coming the present month will witness the celebration of their Sesqui-centennial.

The Schwenkfelder immigrants settled in the southeastern counties of Pennsylvania—Philadelphia, Montgomery, Berks, and Lehigh, where their descendants, numbering probably 2,000 to 2,500, are still mainly living. They are among the most upright, peaceable, and thrifty citizens of their State; many of them resemble in character the "peace-loving Quakers." Their literature is almost exclusively in the German language, and in that tongue are conducted about three-fourths of their religious services, though the English is gaining. Of their blood are Gen. John F. Hartranft, of Philadelphia, twice Governor of Pennsylvania; Judge Heydrick, of Venango County, and Ex-State Senator William A. Yeakle, of Montgomery County, Pa., who are not ashamed of their Schwenkfelder origin, but show their faces in grateful testimony thereto, joining in good-fellowship on Memorial-day. S. G.

HINTS ON CHILD-TRAINING.—No. 3.

CHILDREN sometimes acquire a habit of crying if things displease them; and learn from practice that screaming produces the desired result. This is very irritating to a mother's nerves, and she frequently yields against her better judgment. That fault was corrected in a little friend of the writer's, by the mother quietly remarking, "Well, Florence, screaming won't make me alter my decision; but if you care to scream, I don't know that I object greatly, because it develops the lungs, and is healthy. As you are generally a quiet child I presume it is necessary that something should be done to expand the chest. So for that you have my permission." The noise stopped immediately. She did not care to be doing something useful while in a passion. After that, whenever the crying began, a quiet remark, "that screaming was healthy," brought silence at once. She laughs at this story at this present day, and says: "It was horrible to tell me that. No child would scream after such a remark." The mother thought so at the time.

While reasoning with a child is better, yet corporal punishment is not to be disapproved entirely. Many children are so constituted that a wholesome fear of the rod is actually necessary, but it should not be used so frequently as to lose its terrors. "Familiarity breeds contempt."

Never strike a child on the head. "Boxing the ears," as it is called, frequently produces deafness, and permanent injuries are sometimes inflicted. Life is so hard, success so difficult, that we need all the faculties unimpaired to get along; and where one has to enter life handicapped, defeat is almost certain. Mistakes, embarrassments, and great personal suffering are sure to follow. Therefore, I repeat, don't strike a child on the head with the hand, and never while in a passion.

If a child deserves punishment for an act of positive disobedience, it deserves it just as much two hours after as at the moment. The fault remains the same. It is a good plan to let the child know that the penalty for that offence is to follow, and give it time to think it over. Send it to its room and let it remain in solitude awhile. Give yourself time to cool and judge how much of the offence was deliberate and how much accidental. Thoughtlessness is not to be overlooked, but accidents happen to the best-regulated minds.

Children have as keen a sense of justice as an adult. They can't express it, but they feel it. They know when they have done wrong. After two or three hours have been passed in reflection and anticipation by the culprit, and in reasoning by the parent, then the latter can approach and say, "You know I told you

not to do this thing. You have disobeyed your mother, your loving mother, who has done so much to make you happy, worked so hard while you were playing or sleeping, sacrificed so much for you. You are ungrateful. Now you have done this wickedness (telling a lie or stealing, say). What am I to think of you? Is this the result of all my labor and teaching? A disobedient, ungrateful child. You mortify me, that I have brought up a child that is capable of descending so low; I am ashamed to be your mother. I promised you a whipping; I shall give it to you. I don't wish to do this, but you compel me to whip my own child. How cruel of you." Then let the punishment follow, short, sharp, and decisive. It is not necessary to lengthen out the agony till patience and penitence cease, and indignation arises. The child, most likely, is in a repentant mood. The mother's words have had their effect. He sees himself through her eyes, and he feels the punishment is merited. He won't rebel unless it is so brutally inflicted that nature rises in protest. A child in that mood will bear a good deal, but woe to that parent who so loses control of herself as to lose sight of reason and prudence.

As I said before, don't strike a child with the hand; a little switch of rattan is better. The reason is a philosophical one. The hand tells a great deal. It gives out of the feelings of the heart. How soothing is the mother's hand to a suffering child! How its gentle magnetism calms the disturbed, nervous system, as it glides softly and tenderly over the little form. It relieves the aching head, soothes the disturbed spirit, brings ease and comfort as it drives away pain. How often a cordial grasp of the hand gives sympathy to an aching heart! The feelings of the heart pass out through the hand as truly as the thoughts of the soul through the eyes. That being the case with the feeling of love, shall we deny that feeling of hatred or temper flows through the same channels? Strike a person in a passion and you strike passion into him. In a minute the person is in the same state of feeling as yourself. Therefore, if a switch is used, it does not respond so readily to every feeling, and the culprit gets the benefit without the ill results. Besides that, the hand guided by passion is very heavy, more so than one could imagine till he has felt it. I once knew a lady, a well-meaning woman too, who frequently whipped her little girl with her hand. Once she playfully struck my arm. I was astonished at the weight of that small member. It made the tears start to my eyes. My heart actually melted in pity, when I thought how many times that heavy hand had descended in passion on that little trembling form. No switch in the world would do so much damage as that was capable of. It might be more painful at the moment, as it would tingle and smart, but there was small likelihood of lasting ill effects.

I know a gentleman at this present day whose father, a Methodist deacon, seemed to think that mischief and obstinacy could be pounded and knocked out of a boy. So when his parental authority was thwarted, he proceeded to knock his son down, till at length the boy's brain began to show the effects. It took years for nature to replace and build up what the father had injured. And now, at this date, he, a man of forty-five, finds that the dull, torpid feeling he suffered from as a boy, is beginning to trouble him. It will probably continue to do so till the end of life. When he was growing, nature was working in his favor; but now that he is beginning to go down the hill of life, nature has stopped building and the old injury shows itself.

One special point parents should remember: never apologize in a child's presence for a fault they have committed. Let the child apologize for itself and bear the responsibility. It is a great mistake for a parent to try to excuse or shield a child. The mortification one experiences in being obliged to face the consequences of his own acts, and the humiliation of his pride in making apol-

ogy, is a very effective and salutary lesson, and is never forgotten.

I have known a mother who, when her little son would bring home a toy or trinket that he had picked up in a neighbor's house, quietly carry it back and say nothing to the child, lest she should wound his feelings. That boy grew up to be a thief, and spent several years in a reform school. It was the mother's fault.

I knew another case, where a little fellow, only three years of age, picked up an apple that had fallen from a grocer's stand, divided it with a companion, and ate it. The mother learning the fact, talked to him of the wickedness of stealing, took the child to the grocer, made him confess his fault, and then taught him the little couplet:

"It is a sin to steal a pin,
Much more to steal a greater thing."

That treatment proved effectual. The mortification and shame were so great to his infant mind, that never again was he tempted to take a thing belonging to another. That mother was wise—she nipped the fault in the bud, and it never sprouted again. Once, when the same boy was about fourteen years old, and was occupying the position of errand-boy, in a down-town office, the proprietor thinking to test him, bought some nuts and sat eating them, occasionally saying: "Do you like nuts, Joe? Nuts are very nice at this season," but not offering any. The boy's pride was touched at what he considered shabby treatment, and on his return home, he mentioned it to his mother.

She understood the case, and giving him some money said: "Go and get a quart, sit down and eat every one of them. Fortify your stomach so that you can resist temptation. To-morrow you will feel no desire for them. He is trying to test your honesty."

He did as advised, and some of his employer's nuts lay on the desk till they were covered with dust. The boy never touched them, and the tempter was convinced of his rectitude, so far as nuts were concerned.

As a child approaches maturity, the parent should try in every way to win their full confidence, especially in those little personal matters that young folks generally keep to themselves. They may feel sure of their love, but they want more than that: they should have their confidence and trust, full and unwavering.

Young girls standing

"On the brink with trembling feet,
Where womanhood and childhood meet,"

have many new and perplexing emotions. They are swayed by impulses and feelings they do not understand. Life is becoming a new revelation to them. There is an actual timidity and shamefacedness at the discovery of these new emotions. They know not what to think of themselves. They talk freely with their companions and compare notes, but they "hate to talk to mother." They feel they can't speak to her, they are ashamed.

It is a critical period in a girl's life. Mothers should then do the wooing. Talk to their girls in a confidential way; tell them how they felt at their age; confess the mistakes they made, and acknowledge the blunders. Let the daughters know that the mothers were, and still are, human, and can sympathize in their little tribulations. The mother should come down to the daughter's level and put herself on an equality with her. In a short time the heart and confidence of the daughter are won, and the mother's fears, if she ever had any, are gone forever.

Then comes the reward, mutual confidence and love. They are no longer mother and daughter; they are friends, companions, sisters. Each goes to the other with all her troubles or pleasures; asks and receives advice. Together they talk over affairs, consult ways and means, decide what is best for both, and comfort and console each other; both willingly and gladly sacrificing self. The mother, who had done it so long, is surprised to find the daughter insisting on

being the one to yield. It is a novel feeling, and very pleasant.

Then, what pleasure they have at times, what sports and frolics, laughing like children, and enjoying themselves as much. How satisfying to know there is one true heart that is all your own; that can never change; yours forever and ever.

Happy mother, happy daughter! No fears now that when another and different love comes, mother will be shoved aside and forgotten. She can never be displaced. The new love may come, but the old will remain. She is not going to lose her daughter by marriage. She will gain a son. MRS. JOHN SIEGEL.

OUR ANGEL BOY.

He came in morning's glow,
A bud of gracious promise fair;
He filled our home with loving light,
Sorrow had vanished with the night,
The day no dismal tokens bare—
Our hearts seem'd blessèd so.

So beautiful he came;
Were one and all put quickly by
The days of dread and weary pain;
He turned them all to precious gain;
Joy filled the mother's wistful eye,
And love's devoutest flame.

He came, a comfort sweet;
Heaven's gift, our grateful hearts how blest!
To speak of loss—the thought were wild—
He could not die, our darling child!
Yet 'twas the Giver's strange behest,
Oh, little life—so fleet!

So beautiful—and now
Our boy is gone. At close of day
His cherub soul ascended where
Eternal gardens blossom fair.
Those wide, deep eyes smile far away,
The casket lieth low.

Weep not, sad mother pale:
He knoweth best,—our Lord above.
His Providence may frowning seem,
Behind the clouds His mercies gleam.
Our boy smiles in eternal love,
Beyond the starry veil.

July 25, 1884. H. S. D.

DELIA AND BLANCHE—A PICTURE FROM LIFE.

I.

THE GERANIUM.

"OH, what a beautiful geranium!" said Delia, as she gently drew her mamma to that end of the veranda where, arranged on an elegant stand, several choice plants breathed their fragrance around; "it is full of blossom. I wish it were mine. What an ornament it would be to the window of my room!"

"And if you did possess it, my dear, how many days would it retain its beauty? These things require constant care, and to be regularly watered; one or two days of forgetfulness—for which I have so often to reprove you—and it is destroyed."

"Indeed, indeed, mamma, I will attend to it most carefully; this once, at least, you shall see that I will not merit reproof."

"You shall then possess it, my love; but remember your promise."

With a glowing cheek and light heart Delia took the plant. She carried it to her room, and placed it in the recess of a little gothic window. Every morning she visited it, watered it, looked over every leaf to see that no insect might lurk to destroy its beauty, and carefully plucked every withered leaf. She placed it under shade from the intensity of the sun, and at night cautiously took it in, lest a sudden breeze should break or discompose its lovely branches.

"My Delia has then been true to her promise," said Mrs. Provost, when she visited her daughter's room; and she had all that time every reason for the encouragement of such an opinion. But temptation had not yet put Delia's constancy to a test.

On the week following, her aunt arrived. She came to pass the autumn, and brought Delia, among other toys and articles of amusement, a very beautiful wax doll.

Delia received it with much pleasure. Every piece of satin, lace, or cambric was instantly put in requisition, and her mamma's advice and assistance called in aid for the preparation of its wardrobe; and "Miss Diana," for that was the name she gave her new waxen baby, was speedily and elegantly attired.

For nearly a week, from the time of her rising in the morning until the hour of repose, only deducting the regular hours for lessons and her evening walk, Delia was constantly employed with her new treasure. The geranium was forgotten. In vain did its improving and flourishing beauty appear to call her attention as she tripped past it; the doll alone—its frocks, slips, petticoats, bonnets, caps, and polonaises—filled every thought and occupied every moment.

No morning came but it was carefully dressed; no evening arrived that she did not undress it and lay it cautiously in its cradle; while the geranium, unattended, unwatered, and neglected, gradually faded, and its beautiful, green-velvet leaves became parched and withered.

"And the geranium, Delia?" said Mrs. Provost, impressively, when her daughter went, as usual, to receive her caress previously to retiring for repose,—"the geranium?"

Delia started. She ran to the gothic window; the geranium had withered, and dry branches and scattered leaves were all that remained!

Delia's heart swelled with remorse and self-reproach; she threw herself on the sofa, and, covering her face with her frock, wept bitterly.

"Well, Delia," said her mamma, "what have you to say for the entire disregard of the promise you made me? Had you not entreated me to present you with this once beautiful plant, it would still have been beautiful. Remember with what ardor you requested it; yet your aunt no sooner presented you with a doll than it became an object of complete indifference—neglected, and, by that neglect, destroyed! Remember, Delia, a variable character can never be respectable; it renders its possessor at once contemptible to those around them and a misery to themselves. Yet to this you have added falsehood."

"Indeed, mamma," sobbed Delia, "I am sincerely sorry; forgive me, and I will never"——

"Pause, my child, and reflect on what you are going to say. Let it be, rather, that you will endeavor to avoid offending in future. Had you not promised as earnestly that you would, at least in this one instance, not deserve reproof, you would have avoided the falsehood which will deprive you of my esteem until I have some excellent reason for restoring it again to you."

So saying, Mrs. Provost left her daughter to her tears and to reflections of a nature by no means pleasing. And when Delia pressed her pillow that night, she formed many a plan for a change of character and the regaining of her mamma's esteem and affection.

II.

THE GAZELLE.

"What is that which lies on the lawn?" said Mrs. Provost, as she stood at the drawing-room window, to the gardener, who was arranging some shrubs; "it appears to me like a white cambric handkerchief which the rain has drenched and soiled."

The article in question was brought.

"It is a doll's frock—Miss Delia's, madam," said the gardener.

"And where is your doll?" said Mrs. Provost, when Delia came at her call.

Delia blushed deeply. The question was repeated.

"Mamma, its arm is broken."

"Fetch it to me."

The doll was brought. Its prettily-turned arm had been crushed by some

heavy article having been placed upon it; and the same accident had flattened the nose and broken in part of the neck.

"How has this occurred?"

"Mamma, it was lying on the sofa in my room; I went hastily to fetch some shells to go on with the grotto, and forgetting it was there, I stood my little cabinet on it and crushed it."

"Ah, Delia, Delia! The geranium neglected for the doll; the doll forgotten for the grotto! Who can depend upon so fickle a nature?

"I think," continued Mrs. Provost, "that the sum which your aunt laid out on this toy for your gratification was about ten dollars, and at least three dollars have been expended in its dress—this makes thirteen dollars. And all this has been worse than thrown away upon a thoughtless, careless little girl who never dreams how many poor, hungry children it might have fed; how many sinking hearts it might have cheered among the many sufferers who are now pining in want and sorrow! Do you remember, Delia, the hut we visited together? Well, the sum you have thus disgracefully wasted would have supported the whole of that numerous family for more than a fortnight!"

Delia sank on her knees; she hid her face in her mamma's lap and wept aloud; but she dared not promise, for she felt that she did not deserve her mother's confidence.

The last arch of the grotto was commenced, when it was thrown aside, for a beautiful tame gazelle was presented to her by her papa.

Delia was delighted; but as she placed her hand on its neck, she glanced at her mamma, who bent upon her a penetrating look of mingled inquiry and reproof.

"No, dear papa, I can not accept it."

"And why, Delia?"

"Because I am afraid."

"Of what, Delia?" said her mother; "assuredly not that you shall neglect it! Take it, my girl, and give us a proof to the contrary."

Delia took the riband attached to the little ornamental collar which was round its neck. She patted, she caressed it she formed the best of resolutions; fed it constantly; gave it fresh hay for its bed, and was delighted to play with it on the lawn, or to see it run after her through the grove, and drink at the fountain.

Some months—yes, months elapsed—a long time for Delia to be interested in the same object. Her mamma was pleased, and hoped that Delia was acquiring a good degree of steadiness.

It was a lovely spring; every tree put forth its blossom, and the little woodland choristers again warbled from their branches. Delia's beloved companion, her chosen friend, her Blanche, came to pass some weeks with her. This would be a festival, indeed, for there was no one she loved so well. A beautiful pleasure-boat gliding over the broad, clear pond, and many hours of diversion and recreation were passed therein by the young friends. Delia was all animation, for the boat was a novelty; it was painted and gilded, with cushioned seats, and a canopy.

"Did you not hear a moan?" said Blanche, laying her pretty white hand on Delia's arm, as they were tripping past the little outbuilding which Delia had chosen for her gazelle's nightly habitation; "did you not hear a moan, Delia?"

Delia started. She felt in her reticule for the key; it was not there.

"Julia, fetch the key from the dressing-table."

Julia returned: "It is not there, Miss."

"It must be on the window-sill of my room, then," said Delia.

"No," replied Blanche, "I should have seen it there this morning."

Julia ran to the room, the moans becoming fainter.

Delia stamped her feet in agony. "Oh! my poor Fidele; for more than four days he has never once entered my imagination!"

"Indeed!" said Blanche, turning pale, "can that really be true? My dear girl, how could you be so thoughtless?"

Poor Fidele—her papa's welcome present. her once-cherished favorite, her

little playmate—lay panting and expiring; its innocent eye turned up to her face, seemed to say, "How could you be so cruel as thus to forget me?" She leaned over him in agony; her tears fell upon him; he licked her hand and expired!

Delia became gloomy and cheerless; in vain did the soothing voice of Blanche seek to console her; in vain did she offer gentle advice for the future. She dreaded her mamma's investigating glance, her papa's inquiry; their presence, formerly so delightful, was now irksome to her.

Delia possessed all that favoring fortune could bestow to render her happy; no comfort was wanting, no wish left ungratified; yet from the vacillation of her nature, she became at once miserable and the object of contempt and reprobation. Had she taken Blanche's good advice, and formed a steady resolution to alter her conduct, she might yet have been happy; but Delia was too much averse to endeavor.

Blanche was naturally fond of study; she already began to excel on the piano; her drawings were tasteful and correct. An intelligent and indulgent father had supplied the means for making her education as complete as her heart was affectionate and amiable and her person lovely.

Delia both loved and admired Blanche; she would fain have imitated her, but she had not sufficient decision to pursue any of those branches in which she could have excelled long enough to acquire proficiency. Her embroidery was thrown aside for drawing, and she began to guide the pencil with some degree of success when she fancied she would like to apply herself for a time wholly to music; then, after a few days, her piano was neglected for the guitar, and that, ultimately, for some other incitement of variety.

As Delia's years matured, her errors strengthened, and although her parents secured her a wealthy alliance, yet she was not happy. Delia had an elegant establishment—her table was covered with delicacies; her wardrobe was expensive and superb; while thousands around her were perishing with cold and hunger. She had the means of rendering many such beings happy, and that without sacrificing a trifle from the luxuries she enjoyed.

She did, indeed, sometimes think that she should not dislike to become a benefactress, and be spoken of as highly benevolent; but something always happened to prevent carrying this good intention into effect. And without one hour of true self-consciousness, or one sincere companion, Delia still continued to vegetate amid the luxuries surrounding her.

MRS. EMILY LOMER.

(*To be continued.*)

THE TEST OF FITNESS.

DEEPLY learned, fresh from school,
Comes my all-accomplished daughter!
Newly freed from bookish rule,
Say, what wisdom have they taught her?
'Ologies I care not for,
Mystic science, classic lore,
So she be but skilled enough in
Homely arts to bake my muffin.

Knows she, as her mother knew,
Recipes and quaint directions:
How to bake, to boil, to stew
Dainty foods and nice confections?
Or, as others of her sex,
Born and nurtured but to vex,
Scarcely knows she of such stuff in
Nature as unbaked muffin?

Have they trained her to pursue
Pastimes merely ornamental?
And, with princely retinue,
To expend a Rothschild's rental?
Can she nothing do but dance,
Paint on china, dream romance?
Well, perhaps I grow too rough in
Expectation of my muffin.

Come then, pretty maid, at once
Prove my jealous fears unfounded.
Make me own myself the dunce,
All my gibes on envy grounded,
Yet, one warning word believe,
Mind of man can naught conceive
So unconquerably tough, in
Human ken, as half-cooked muffin.

A DYSPEPTIC.

THE MIND CURE.

THE growth of belief in mind and faith cures is something phenomenal, and with it is signalized the rise of a new school of medicine whose strength is far from realized by physicians of the drug schools. To be sure, every cultured practitioner is ready to admit the importance of mental condition in the treatment of disease; but not one in a hundred is willing to admit that persons suffering from acute and chronic disease may be cured by a state of the mind, and without any assistance of the prescriber. There are dozens of people, men and women, who practice the mind cure some of them having attained considerable eminence for success; but the system practiced is not easy of explanation—perhaps can not be extricated altogether from the domain of mystery. A writer in the *Boston Journal* has devoted two or three columns to the subject, and endeavors to enlighten the readers of that newspaper with regard to its nature. He says:

"Even those who have studied it longest admit that they do not comprehend its full force, and are unable to describe the exact method of the healing process. The process is essentially a spiritual work. It is held that there is a part of us that is never sick, and this part is mentally worked upon so as to control the sick person's consciousness, and this destroys the sickness, for 'mind cures matter.' A disciple of this school is sick—no, he is not sick, for that is something which he will not admit; he has a belief that he is sick; he then says mentally to the rebellious body, 'What are you? You have no power over me; you are merely the covering given to me for present purposes; it is an error to suppose that I am sick; I recognize the great truth that I myself, my individuality, my personality, my mind, can not be sick, for it is immortal, made in the image of God, and when I recognize the existence of that truth there is no room left for the existence of error; it is unequivocally proved that two things can not occupy one and the same place; error can not exist in the same place with truth, therefore error is not in existence, and I am therefore not sick.' And the mind thus utterly ignoring the existence of error, of sickness, keeps matter in a state of health. It is not similar to will power, for will power admits the existence of sickness, but drives it away by the superior force of the will, while the mind cure denies the existence of sickness, and instead of conquering merely ignores it entirely. It is not similar to faith cure, for faith relies on the action of an outside power, the God-power, while the mind cure relies entirely on the power, or more properly speaking healthfulness, of the individual's own mind.

"Many and remarkable cures are said to have been performed by this mental healing process. The practitioners them-

selves say little about them; they are reticent to an unusual degree on this matter except when talking to their own followers, and declare that they do not wish to advertise the doctrine in any way. Their patients, however, tell marvellous stories. One young girl, for instance, had been sick for twelve years, unable to leave her room; a lady mind practitioner treated the girl, and in a short time she was able to go out, and now is apparently in the best of health. Another lady, who is only a student in the doctrine, suffered for years with the severest rheumatism. She became convinced of the truth that mind rules matter, and declaring to herself, 'I have no rheumatism; I have only believed that I had rheumatism; how can I, my immortal self, be ill, that is, be in error? I am not sick,' convinced herself that she did not have rheumatism, and since then has not suffered the least. This case, like many others, is one in which there is no motive for telling anything except the truth, as the self-curer is not engaged in the practice of mental healing, and is moreover a lady highly esteemed in the social circle where she moves. At Quincy Market are a number of marketmen who willingly testify as to the results of this treatment. One man said: 'I suffered for weeks with the most acute rheumatism, and any one who has had that knows how painful it is; I put myself under the mind doctor's treatment and he cured me completely.'

"The cures are not confined to such light cases as transitory pains, but are claimed to effect contagious and hereditary diseases as well, in fact every kind of ill to which mortal man is susceptible. One patient had a limb so diseased that it had turned black; three doctors were consulted, and decided that it must be cut off, but a mind doctor held otherwise, and after a longer treatment than usual, for the case was severe, brought the limb back to its perfect condition. In Charlestown resides a gentleman whose eyes were covered with cataracts, and who had been told by one of the most eminent eye-doctors of this city that he would be blind, that nothing could help him. The patient went to a mind doctor—at that time being so blind that he could not read the signs on the streets through which he passed—and in a few weeks both cataracts had disappeared. Another lady in Medford, after a treatment of 125 sittings, was relieved of an even worse blindness; the cataracts gradually disappeared, and life returned to the eye. Cases of diphtheria, ulceration of the brain, cancer, asthma, indigestion, congestion of the brain, fever, were cured by the influence of the mind. In many of these cases the patient had been given up by the doctors of the regular school; in fact, it was a common saying of Dr. Quimby, the founder of the mind school, that people would send for him and the undertaker at the same time, and the one who got there first would have the case.

"The method of treatment is a simple one, and likely to try the faith of the patient to the utmost. It consists in sitting quiet and doing nothing. The practitioner faces the person who believes himself sick, for about half an hour, silently communing in his own mind the same as he would do in case he himself was supposed to be ill, or else explaining to the patient what the truth really is in regard to his disease. This is all that is necessary. Sometimes a harmless, outward application is made, merely to give the patient confidence, since the test of belief is hard when nothing is apparently done; but this has no bearing upon the method of curing.

"In Boston there are four schools of this system, and all of these hold as their fundamental idea that disease does not come from God, and that He has nothing to do with its perpetuation, but that it is one of the errors of man which can be cured by truth; the application of this truth is not by faith, but by an intelligent understanding. The schools, however, disagree in regard to later developments, some claiming to be further advanced than the others."

TRICHINOSIS.—No 2.

IT is believed that intestinal trichinæ not only deposit their young in the alimentary canal, but that the latter spread to and through the connective tissue. It happens, also, that a single embryo may pass by means of the blood currents into the muscles. The size and appearance of the embryos remain unchanged during migration, and the first change is observed after the worm has reached the fasciculi, and then taking on a condition of repose. The fasciculus, which is generally occupied by the parasite, is not left to conjecture, as some embryos are always seen in the fibres, and we are enabled to follow them step by step through the changes they undergo, until they reach their full development as muscle trichinæ.

The nuclei of the capillary vessels also change to some extent through distribution of the inflammatory products. The blood-vessels are enlarged and elongated, taking a circoid form as the embryo eats its way through the fasciculus.

It is known that the oval corpuscles, or muscle nuclei, may contain deposits of

Fig. 22.—First Trace of Capsule.

excrement. This is supposed to be due to the parasites retaining their previous activity; but the same thing occurs with the cestoides and other helminths after reaching their future resting-place where they fall into a condition of repose for the growth of the body and differentiation of the organs. Now begins, with the entrance upon complete rest, such rapid growth that the worm will, in the time of ten to twelve days, become a fully formed and matured muscle trichina.

As soon as the internal organs are formed, the worm increases in length rather than in breadth, and assumes a slender appearance, at the same time becoming bent and curved, and finally going into the irregular spiral position. By the microscope can now be seen the difference of the sexual organs in the male and female.

During migration the trichinæ may be

Fig. 21.—Fully Developed Worm—Female (Magnified).

seen in all stages from those just arrived in the tissues to those measuring 0.7 *m.m.* in length and completely coiled. In these cases generally the slender end of the worm is more closely coiled than the posterior part generally as it lies in the periphery of the coil (Fig. 22).

On the thirty-third day after infection, the trichina lies in a tubular sheath that contains the parasite and granular matter with the oval muscle nuclei. The cavity may be long and slender, or short and

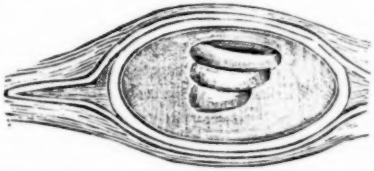


Fig. 23.—Encapsulated Trichina—Advanced State.

thick, and granular substance may fill the whole space as is seen in Fig. 22.

In other cases, sometimes, the tubular cavity is to be seen with a well-defined constriction at either end, and has only scattered masses throughout the tube;

this constriction is the first trace of the capsule, or it consists of a deposit of clear substance in the inside of the sheath in the form of an ellipse, as seen in Fig. 23. The first trace of the capsule of the muscle trichina is produced by a peripheral

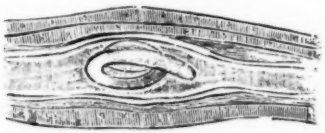


Fig. 24.—Piece of Muscle with Trichina.

consolidation of the contents of the altered sarcolemma sheath.

In forty to fifty days the trichinæ lie in a clear space of about 0.4 to 0.5 *m.m.* long, and are inclosed at the extremities, and having a clearly defined outline, the tubular portion of the sheath disappears, and in its place is seen only a line of connective tissues, rich in granules, abutting against the end of the connective tissue inclosure; but without a knowledge of the previous condition nothing abnormal would be suspected (Fig. 23).

Fig. 24 shows the encapsulated trichina, the sarcolemma sheath, and the cell proliferation, after the injection of acetic or picric acid into the connective tissue envelope, and in Fig. 25 we have a view of the rich network of capillary blood-vessels which proceed from the small proliferative cell, as will be seen in the primary formation of new connective tissue, each pole having an independent vascular sys-

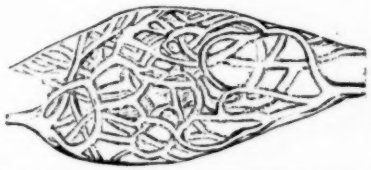


Fig. 25.—Network of Capillary Vessels (Magnified)

tem with afferent and efferent vessels, which connect with the muscle capillaries.

Traces of calcification may be seen in a hog four months after infection, but by close observation capsules with primary calcifications have been seen on the eighty-fifth day. After this time there is a marked difference in the degree of calcification, some of the cysts being completely opaque, some transparent and having a deposit only at the poles.

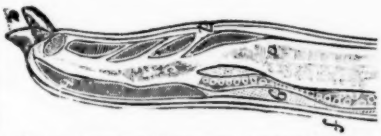


Fig. 26.—Posterior Extremity, showing Organs.

On the twenty-sixth day the muscle trichinæ are about one-half their full size; some of the embryos, however, are not capable of development to muscle trichinæ.

In about a year, should the patient survive till then, the capsules can be seen with the naked eye; they will then look like small white spots in the red muscle. This appearance is due to the deposit of lime salts. Under the microscope with a low power, from 12 to 20 diameters, these spots are found to be cysts, oval or spheroidal in form, with the long axis in the direction of the fasciculi, in which a small round worm is coiled up, the outline being distinct according to the degree of calcification (Fig. 23).

The size of the capsules then can be seen at about a diameter of 0.2 *m.m.* to 0.4 *m.m.* There is also a difference in length of from 0.3 *m.m.* to 0.8 *m.m.*; the average may be taken, let us say, at about

Fig. 27.—Part of Female, showing Ova (Magnified).

0.4 *m.m.* for length, and about .26 *m.m.* in breadth.

It sometimes occurs that the capsule contains more than one worm—two, three, four, and even five worms have

been observed in the same cyst, and it is more or less developed, according to the number of trichinæ.

At the posterior extremity (Fig. 26) will be seen a small opening with the chitin. This posterior extremity of the intestine differs but a little from the stomach, and the external muscle-like wall is lined by a narrow tube of chitin, which is continuous throughout. These worms can be washed out from specimens of muscles with pure uric acid.

SYMPTOMS.

According to Dr. Dalton the sufferer from trichinosis experiences more or less irritation of the intestines within ten days after eating the infected flesh. As a rule, the greater the irritation the more favorable the prospects for him, because it may produce frequent evacuations that will carry off the parasites. But if the irritation is moderate, and the young animals have time to penetrate the intestinal walls and make their way to the muscular tissue, then is set up the inflammatory stage, the most dangerous of the disease. This is accompanied with general pain and soreness, swelling and typhoidal symptoms. The patient becomes very weak, with a rapid pulse, dry, hot skin, lips, and tongue. In this stage death may ensue in six days or six weeks, or, as we have intimated, the parasites, after reaching the muscles, may become encysted, the painful feelings disappear, and the patient apparently recovers from the disease.

RESOURCES OF HYGIENIC DIET.

WHEN hygienists speak of having an elaborate bill of fare from which to choose what they may eat, the flesh-eaters laugh cynically, as if to leave their traditional beef, mutton, and pork were to be launched upon an ocean of uncertain speculation with regard to one's diet. On this point a correspondent of the New York *Tribune* has something to say that shows in a manner the large resources of the reform diet. He writes in a vein of discretion that should win general favor when he says:

"In food, as in medicine, new prescriptions are offered and old advice discarded constantly; and this is unavoidable while the science of human life is involved in obscurity, and empiricism is our only guide. Probably we err in jumping to conclusions too readily, and trying to make a test of individual experience, or that of nations, allowing too little for modifying circumstances. Rules for diet, therefore, may properly be dispensed with much diffidence, knowing how readily they may be controverted. The effort to reach the best physical condition and conform to the highest authority is creditable; and we do well to notice what seems to agree with us best, what gives us most buoyancy and strength, though it serves only as a rule for ourselves, not for others.

"But one can live well on vegetables, and set a beautiful and appetizing table. Vegetarianism implies abstinence from flesh and blood, leaving us milk, cream eggs, with all the fruit and vegetable abundance that our seasons produce. From spring until late in fall we can have substantial food from our own gardens, as potatoes in variety, early and late pease, beans of various kinds, corn of several sorts with all the dishes made of it; and all through these months we can have relishes in greens, spinach, dandelions, mustard, with lettuces and other salads, cucumbers, beets, tomatoes, etc., etc. Indeed, I think that housewife a very unskilled server of tables who can not make her family forget the flesh-pots during this period.

"In winter we still have vegetables if we raise them and put them in the cellar, while the dried beans, pease, and corn, the canned goods, with foreign-grown vegetables, and luscious fruits from tropical climes, abundant in our markets, all serve to increase our supply and make variety on our tables. All through the

year we have the breakfast cereals—steam-cooked white oats, shredded maize, and prepared wheat—diminishing labor and improving the bill of fare. We are told of more than twenty ways of cooking eggs, and the combination dishes of vegetables and fruit with milk, cream, and eggs are almost numberless. There is plenty to eat, and good eating too, if one wishes to abstain from flesh and blood; to abjure the slaughter of animals and avoid the effect of their diseases.

"One of the essentials in the experiment is not only good, but delicate cooking. No matter what the food may be, a want of attention or a want of knowledge may spoil it. Many a woman, however, is blamed for poor cooking, when the fault is entirely in the supplies. Whether vegetarians or not, we do well to have vegetables early and late, and of the best kinds, to give variety to our tables, and help us to avoid the excessive use of a concentrated and animalized diet, which, I fancy, will hardly be shown to be good for us. Dr. Andrew Combe thought 'all that can be sensibly said in regard to diet relates to quality and quantity—the quality should be plain, the quantity moderate.'"

SENSE-PERCEPTION IN BLACK RACES.

SOME very curious physiological facts bearing upon the presence or absence of white colors in the higher animals have lately been adduced by Dr. Ogle. It has been found that a colored or dark pigment in the olfactory regions of the nostrils appears to be essential to perfect smell, and this pigment is rarely deficient except when the whole animal is pure white. In these cases the creature is almost without smell or taste. This, Dr. Ogle believes, explains the curious case of the pigs in Virginia adduced by Mr. Darwin, white pigs being poisoned by a poisonous root which does not affect black pigs. Mr. Darwin imputed this to a constitutional difference accompanying the dark color, which rendered what was poisonous to the white-colored animals quite innocuous to the black. Dr. Ogle, however, observes, that there is no proof that the black pigs eat the root, and he believes the more probable explanation to be that it is distasteful to them, while the white pigs, being deficient in smell and taste, eat it and are killed. Analogous facts occur in several distinct families. White sheep are killed in the Tarentino by eating *Hypericum crisum*, while black sheep escape; white rhinoceroses are said to perish from eating *Euphorbia candelabrum;* and white horses are said to suffer from poisonous food where colored ones escape. Now, it is very improbable that a constitutional immunity from poisoning by so many distinct plants should, in the case of such widely different animals, be always correlated with the same difference of color; but the facts are readily understood, if the senses of smell and taste are dependent on the presence of a pigment which is deficient in wholly white animals. The explanation has, however, been carried a step further, by experiments showing that the absorption of odors by dead matter, such as clothing, is greatly affected by color, black being the most powerful absorbent, then blue, red, yellow, and lastly white. We have here a physical cause for the sense-inferiority of totally white animals, which may account for their rarity in nature. For few, if any, wild animals are wholly white. The head, the face, or at least the muzzle or the nose (as in deer), are generally black. The ears and eyes are also often black; and there is reason to believe that dark pigment is essential to good hearing, as it certainly is to perfect vision. We can therefore understand why white cats with blue eyes are so often deaf—a peculiarity we notice more readily than their deficiency of smell or taste.

If, then, the prevalence of white coloration is generally accompanied with some deficiency in the acuteness of the most important senses, this color becomes

doubly dangerous, for it not only renders its possessor more conspicuous to its enemies, but at the same time makes it less ready in detecting the presence of danger. Hence, perhaps, the reason why white appears more frequently in islands where competition is less severe and enemies less numerous and varied. Hence, also, a reason why *albinoism*, although freely occurring in captivity, never maintains itself in a wild state, while *melanism* does. The peculiarity of some islands in having all their inhabitants of dusky colors—as the Galapagos—may also perhaps be explained on the same principles, for poisonous fruit or seeds may there abound which weed out all white or light-colored varieties, owing to their deficiency of smell and taste. We can hardly believe, however, that this would apply to white-colored butterflies, and this may be a reason why the effect of an insular habitat is more marked in these insects than in birds or mammals. But though inapplicable to the lower animals, this curious relation of sense-acuteness with colors, may have had some influence on the development of the higher human races. If light tints of the skin were generally accompanied by some deficiency in the senses of smell, hearing, and vision, the white could never compete with the darker races, so long as man was in a very low or savage condition, and wholly dependent for existence on the acuteness of his senses. But as the mental faculties became more fully developed, and more important to his welfare than mere sense-acuteness, the lighter tints of skin, and hair, and eyes would cease to be disadvantageous whenever they were accompanied by superior brain-power. Such variations would then be preserved; and thus may have arisen the Xanthochroic race of mankind, in which we find a high development of intellect, accompanied by a slight deficiency in the acuteness of the senses as compared with the darker forms.

A. R. WALLACE.

WHY CONTAGIOUS DISEASES ATTACK BUT ONCE.

PROFESSOR TYNDALL thus endeavors to explain the immunity obtained against a second attack of a contagious disease: "One of the most extraordinary and unaccountable experiences in medicine was the immunity secured by a single attack of a communicable disease against future attacks of the same malady. Smallpox, typhoid, or scarlatina, for example, was found as a general rule to occur only once in a lifetime of the individual, the successful passage through the disorder apparently rendering the body invulnerable. Reasoning from analogy, I have ventured to express the opinion that the rarity of second attacks of communicable disease was due to the removal from the system, by the first parasitic crop, of some ingredient necessary to the growth and propagation of the parasite.

"The cultivation of micro-organisms which is now everywhere carried on, enables us to realize the smallness of the change which in many cases suffices to convert a highly nutritive liquid into one incapable of supporting microscopic life. Various important essays bearing upon this subject have been recently published in the *Revue Scientifique*. M. Boulsy there draws attention to the results obtained by M. Raulin in the cultivation of the microscopic plant named Aspergillus niger. The omission of potash from Raulin's liquid suffices to make the produce fall to one-twenty-fifth of the amount collected when potash is present. The addition of an infinitesimal amount of a substance inimical to the life of a plant is attended with still more striking results. For example, one part in sixteen hundred thousand of nitrate of silver added to the liquid entirely stops the growth of the plant. And now we come to the important application of this fact, which has been indicated by M. Duclaux. Supposing the Aspergillus to be a human parasite—a living contagium—capable of self-multiplication in the human blood, and

of so altering the constitution of that liquid as to produce death, then the introduction into the blood of a man weighing sixty kilogrammes of five milligrammes of the nitrate of silver would insure, if not the total effacement of this contagium, at all events the neutralization of its power to destroy life. An index finger here points out to us the direction which physiological experiment is likely to take in the future. In anticipation of the assault of infective organisms, the experimenter will try to introduce into the body substances which, though small in amount, shall so affect the blood and tissues as to render them unfit for the development of the contagium. And subsequent to the assault of the parasite he will seek to introduce substances which shall effectually stop its multiplication. There are the strongest grounds for hope that in the case of infective diseases generally such protective substance will be found."

MODERATE DRINKING.

THE moderate drinker is found in the most intelligent and influential walks of society, and his voice and example operate most powerfully against the warnings of the temperance advocate in their influence upon the masses. When, however, men of commanding eminence in medical science speak, their opinions should be widely respected. A letter of Sir Henry Thompson to the Dean of Canterbury on moderate drinking, should be read especially by the class above mentioned. He says:

"I have long had the conviction that there is no greater cause of evil, moral and physical, in this country, than the use of alcoholic beverages. I do not mean by this that extreme indulgence which produces drunkenness. The habitual use of fermented liquors to an extent far short of what is necessary to produce that condition, and such as is quite common in all ranks of society, injures the body and diminishes the mental power to an extent which I think few people are aware of. Such, at all events, is the result of observation during more than twenty years of professional life, devoted to hospital practice, and to private practice in every rank above it. Thus I have no hesitation in attributing a very large proportion of some of the most painful and dangerous maladies which come under my notice, as well as those which every medical man has to treat, to the ordinary and daily use of fermented drink, taken in the quantity which is conventionally deemed moderate. Whatever may be said in regard to its evil influence on the mental and moral faculties, as to the fact above stated I feel that I have a right to speak with authority; and I do so solely because it appears to me a duty, especially at this moment, not to be silent on a matter of such extreme importance. I know full well how unpalatable is such a truth, and how such a declaration brings me into painful conflict, I had almost said, with the national sentiments and the time-honored usages of our race. My main object is to express my opinion as a professional man in relation to the habitual employment of fermented liquor as a beverage. But if I ventured one step further it would be to express a belief that there is no single habit in this country which so much tends to deteriorate the qualities of the race, and so much disqualifies it for endurance in that competition which in the nature of things must exist, and in which struggle the prize of superiority must fall to the best and to the strongest."

HOW TO MAKE A BED.—We are inclined to think that few people really know how to make a bed properly, or they are too much in a hurry to put things to rights in a chamber to be thorough. A writer in a Philadelphia paper ventures the following practical remarks on the subject:

"Let every bed-maker, as soon as all the covers are spread, turn down the upper sheet and all above it, leaving a generous margin below the bolster. Some people, you know, pull all the covers straight up to the top and lay the bolster upon them, so that when bed-time comes they must be arranged at the head. Boys don't like this way, and perhaps some other folks don't either. It is the custom to pile two big, square pillows on the top of the bolster, and then put on two pillow-shams, and then, sometimes, or perhaps before the pillow-shams, a sheet-sham. This is setting a trap for the unwary. Only a remarkably careful woman is equal to the task of getting off all the 'finery' properly. Why not almost, if not altogether, abolish shams of all kinds? Why not honestly take off the big, square pillows and supply every bed with a comfortable bolster to take the place of pillows? If you like adornment, embroider or decorate the slips and sheets themselves without any make-believe. Silk, lace, and the like seem out of place on a bed, which should suggest repose. Imagine a big boy with boots on flinging himself into the midst of a fairy creation of pink satin and torchon! Let beds be what they look like, and let them look like what they are—real resting-places."

A CHILD PRODIGY.

THE accompanying engraving is a portrait of a boy only seven years of age, who has attracted no little attention in the town of Maywood, Mo., where his parents, whose name is Brennan, reside, on account of his remarkable precocity. The head as shown in the engraving, and much more clearly in the excellent photograph sent us, is above the average size and finely developed, the forehead and top-head being specially marked by fulness of growth. Dr. Bruse, of Maywood, has brought the child to our notice by letters of recent date, in which he speaks in very high terms of the little fellow, and predicts for him a great future, provided that his training is judicious and adapted to the harmonious development of his great original gifts. He describes

him as cool and deliberate in all circumstances, showing the judgment of a man. His head is very wide in the region of Constructiveness, Ideality, and Sublimity; his reasoning faculties are large, and the perceptive development well indicated. He weighs fifty-three pounds, while his head is twenty-one and a half inches in circumference—very extraordinary for a mere child as he is. In answer to our inquiry, Dr. Bruse states that both his parents have remarkably good physical development, and are contrasts in temperament and organization, the mother being of the nervous-bilious type, with large Causality and Constructiveness, and generally well balanced, not only in the brain, but in all the physical parts of the body. She is of German parentage. The father is of Irish parentage and possesses all the lively characteristics of his race. He is of vital temperament, and possesses a fairly balanced intellect—is an excellent business man, having charge of a large concern in Maywood. Such a boy needs careful, intelligent management, otherwise his precocity may prove ruinous to both brain and body, through exhausting activity. He needs no stimulus, but rather steady restraint, and a well-ordered system of physical training, so that his body may be rendered vigorous and enduring.

HOW TO AVOID COLDS.

AN eminent London physician, Dr. Graham, is reported as having said some good things on the subject of colds, and which are in the main accordant with rational and hygienic views. For instance:

"It is not a correct practice, after a cold is caught, to make the room a person sits in much warmer than usual, to increase the quantity of bed-clothes, wrap up in flannel, and drink a large quantity of hot tea, gruel, or other slops, because it will invariably increase the feverishness, and in the majority of instances, prolong, rather than lessen, the duration of the cold. It is well known that confining inoculated persons in warm rooms will make their small-pox more violent by augmenting the general heat and fever; and it is for the same reason that a similar practice in the present complaint is attended with analogous results, a cold being in reality a slight fever. In some parts of England, among the lower order of the people, a large glass of cold spring water, taken on going to bed, is found to be a successful remedy, and, in fact, many medical practitioners recommend a reduced atmosphere, and frequent draughts of cold fluid, as the most efficacious remedy for a recent cold, particularly when the patient's habit is full and plethoric."

Dr. Graham further says:

"It is generally supposed that it is the exposure to a cold or wet atmosphere which produces the effect called cold, whereas it is returning to a warm temperature after exposure, which is the real cause of the evil. When a person in the cold weather goes into the open air, every time he draws his breath the cold air passes through his nostrils and windpipe, into the lungs, and consequently diminishes the heat of these parts. As long as a person continues in the cold air, he feels no bad effects from it; but as soon as he returns home, he approaches the fire to warm himself, and very often takes some warm and comfortable drink to keep out the cold, it is said. The inevitable consequence is that he will find he has taken cold. He feels a shivering which makes him draw nearer the fire, but all to no purpose; the more he tries to heat himself, the more he chills. All the mischief is here caused by the violent action of the heat.

"To avoid this, when you come out of a very cold atmosphere, you should not at first go into a room that has a fire in it, or, if you can not avoid that, you should keep for a considerable time at as great a distance as possible, and, above all, refrain from taking warm or strong liquors when you are cold. This rule is founded on the same principle as the treatment of any part of the body when frost-bitten. If it were brought to the fire it would soon mortify, whereas, if rubbed with snow, no bad consequences follow from it. Hence, if the following rule were strictly observed —when the whole body, or any part of it, is chilled, bring it to its natural feeling and warmth by degrees — the frequent colds we experience in winter would, in a great measure, be prevented."

A MIGRATORY NEEDLE.—A Chicago newspaper publishes the following extraordinary account of the travels of a needle: "Over twenty years ago Mrs. Augusta Peabody, of this city, accidentally swallowed a small cambric needle. One day last week Mr. Henry Peabody, the fifteen-year-old son of this lady, complained of intense pain in his right side. A physician was summoned to examine the inflamed spot, which appeared midway between the boy's shoulder and the waist. After cutting into the flesh, the physician removed from the boy the identical needle which the boy's mother had swallowed twenty years before. The case has excited much discussion in local medical and surgical circles, and will be the subject of several papers at the next meeting of the State Physicians' Institute in this city next month."

STRICTLY HYGIENIC.—A rather eccentric, yet eminent physician, was called upon to attend a middle-aged rich lady who had imaginary ills. After many wise inquiries about her symptoms and manner of life, he asked for a piece of paper and wrote down the following prescription: "Do something for somebody." In the gravest manner he handed it to the patient and left. The doctor heard nothing from the lady for a long time. One Christmas morning he was hastily summoned to the cottage of his Irish washerwoman.

"It's not meself, doctor, it's me wrist that's ailing. Ye see, I was after goin' out into the black darkness for a few bits of wood, when me fut struck this basket. It stood there like a big mercy, as it was, full of soft flannel from Mrs. Walker. She told me that your medicine cured her, doctor. So, if you plaz to put a little of that same on me wrist, I'll be none the worse for me nice present."

"It's a powerful remedy," said the doctor, gravely. And more than once in after years he wrote the prescription: "Do something for somebody."

INFECTED BY A PARROT.—Our correspondent, Mr. Henry Noble, of Turin, Italy, sends us the following peculiar item: "About a year ago, the Fueter family of Oberbalm were destroyed by a contagious breast disease, the origin of which was traced to a sick parrot. With the extinction of that family the inheritance passed to certain distant relatives of Franenfeld, and among the things which were inherited was the parrot. After the lapse of a few months four members of the Franenfeld household became ill, and the parrot died. As the cause of the infection was known, the body of the bird was sent to the Museum of Natural History at Berne for an examination. A Dr. Grimm, an assistant there, became ill shortly afterward, being struck by a serious breast complaint. All the medical force are now studying the strange case."

NOTES IN SCIENCE AND AGRICULTURE.

Position in Sleep and Dreams.—Dr. Delaunay, a French observer, in a communication to the Biological Society of Paris, states certain conclusions of his with reference to the production of dreams by the manner in which one lies while sleeping. The fact of disagreeable dreams while one lies on his back is explained by the connection which is known to exist between the organs of sensation and the posterior part of the brain. The most general method of lying, perhaps, is on the right side, and this appears to be also the most natural method, for many persons object to lying upon the side of the heart, which, it has been more than once asserted, should have free action during sleep. Nevertheless, Dr. Delaunay's statements hardly harmonize with this opinion. When one sleeps upon the right side, that is to say, upon the right side of the brain, one's dreams have marked and rather unpleasant characteristics. These characteristics, however, are essentially those which enter into the popular definition of dreams. One's dreams are then apt to be illogical, absurd, childish, uncertain, incoherent, full of vivacity and exaggeration. Dreams which come from sleeping on the right side are, in short, simply deceptions. They bring to the mind very old or faint remembrances, and they are often accompanied by nightmares. Dr. Delaunay points out that sleepers frequently compose verse or rhythmical language while they are lying on their right side; this verse, though at times correct enough, is absolutely without sense. The moral faculties are then at work but the intellectual faculties are absent. On the other hand, when a person slumbers on his left brain, his brains are not only less absurd, they may also be intelligent. They are, as a rule, concerned with recent things, not with reminiscences.

Fall of Meteoric Matter to the EARTH.—In a contribution by Prof. C. A. Young, to the *North American Review*, he says on this point: "Space is filled also with minor particles, separated from each other only by intervals of a few hundred miles; and these, in the form of meteors and shooting stars, are rushing through space, dropping continually upon the larger worlds, increasing their size, and adding to their store of heat and energy. Every year the earth encounters nearly three thousand millions of them, according to the estimate of Prof. Newton, ranging from the merest particles to masses of several hundredweight. Very probably, also, the comets belong to the same category, being really nothing but larger meteors, or flocks of small meteors, or perhaps even only puffs of meteoric dust.

Nearly all the meteors which strike the earth are very minute. Perhaps a hundred or so reach the ground each year as recognizable masses of stone or iron, weighing from an ounce or two to some hundreds of pounds; but all the rest are dissipated in the upper air, and never come down unless as impalpable dust, not to be certainly identified. The whole amount of matter falling daily upon the earth from outer space is probably about one hundred tons on the average (it is variously estimated from twenty-five to five hundred). A hundred tons is in itself a very considerable quantity, but utterly insignificant as compared with the mass of the earth, and entirely incapable of appreciable effect upon our temperature. Assuming even the largest estimate (five hundred tons a day), and also that the average velocity with which meteors enter our atmosphere is fifteen miles a second (probably considerably too large), we find that the heat annually received from them by the earth is only about fifty-three calories for each square meter of her surface—less than would be imparted by two minutes perpendicular sunshine, and only about $\frac{1}{60000}$ of the heat actually received from the sun in a year. Retaining the same extravagant estimate of five hundred tons a day, it appears that the earth's diameter would grow an inch in about one hundred millions of years, and that her distance from the sun would be reduced about eighty-three feet in a million years, in consequence of the resistance experienced in moving through the meteoric swarms."

Suicides and Murders in Italy.—The suicides and murders are generally in inverse proportion in the different Italian divisions. Of 10,000 cases, there were in 1881 and 1882, according to the statistical report:

	Suicides.		*Murders.*	
	1882.	1881.	1882.	1881.
Liguria	58.7	47.7	14.3	12.3
Lombardy	54.3	51.0	7.5	11.3
Piedmont	51.3	54.7	13.8	14.4
Tuscany	45.0	35.2	15.4	20.7
Rome	44.7	42.4	57.8	45.5
Emilia	43.8	42.2	14.2	14.9
Venice	39.5	38.4	9.5	6.3
Umbria	36.7	49.6	19.6	24.8
Sardinia	35.7	25.8	32.1	58.0
Campania	26.0	25.0	51.1	47.5
Marche	21.8	13.7	26.2	22.9
Abruzzi, Molise	19.2	17.9	29.9	40.2
Sicily	18.2	16.7	33.1	35.9
Puglia	12.4	11.6	29.9	27.4
Calabria	8.8	3.7	35.2	36.9
Basilicata	6.3	7.4	25.3	44.4

In suicides and murders combined Rome ranks No. 1, with a total of 190.4; Sardinia, as No. 2, with 151.6; Campania, as No. 3, with 149.6. Here we see that the so-called "Holy City" is, of all Italian cities, the most wicked and miserable, if the number of deeds of fatal violence be any criterion for judgment. N.

Turin, Italy.

Mites in the Hennery.—The henneries of many people are literally alive with mites, even when the proprietors are not aware of the fact. A friend of mine, who had recently finished a neat and expensive hennery, invited me to step inside and observe how effectually he had guarded against vermin. The frame of the building was covered with tarred paper before the siding was nailed on, and the interior was neatly plastered. As he was looking about he remarked that the mischievous boys ought to be switched for throwing mud against the plastering up at the peak. I remarked to him that those disfiguring spots were clusters of lice—not mud. To his profound amazement he found that those blotches of mud were nothing but mites as full of blood as they could be. Indeed he directed his coachman to cleanse the hennery by collecting the clusters with a brush-broom and dust-pan. Then he deluged the interior with water by letting a stream play from the rubber hose on all parts of the hennery, until every crack and crevice was cleansed, after which he applied the broom and scrubbed perches, floor, and walls in a thorough manner. As soon as the water had dried up, he took a large paint-brush and applied kerosene oil to every part of the perches, and filled up every crack with kerosene. This cleansing was repeated every alternate day for a week.

I have frequently employed kerosene oil in my own hennery with the most satisfactory results. Lime applied in powder, or as a whitewash, is not worth one cent to exterminate mites, as they will run about over the lime like mice in the growing grass.

Respected reader, if you have any doubts as to there being any vermin in your hennery, enter it some evening after the hens have gone to roost, and take off your coat and vest and handle some of the hens. If any mites are present, you will discover scores of them on the sleeves of your white shirt. Examine also the perches early in the morning, and you will discover the little pests crawling slowly toward some refuge, where they remain during the day. ESS E. TEE.

Preservation of Ancient Art.—A letter from M. Renan, lately published in the *Journal des Debats*, contains the following on the above subject: "The preservation of Egyptian monuments is a matter of importance to all humanity. After Greece, that has taught us the beautiful and true, after that which has created religious tradition, Egypt is the country that inspires most of those who have some regard to the objects of art. We attach great value, and with reason, to antiquities called prehistoric. These antiquities, however, have one great defect: they are anepigraphic, that is to say, silent. The Egyptian monuments are of prehistoric antiquity and covered with inscriptions; from them we hear the voice of others like ourselves, who lived upon this earth six thousand years ago. The preservation of the monuments of

Egypt since Champollion, and especially since Mariette, has morally devolved upon France. Here is a protectorate which it is well for us to claim, since it does not impose severe conditions; however, for two years, in consequence of the strange situation in which Egypt has been precipitated—and a situation that will not terminate soon—the work of this preservation has become difficult. M. Asparo performs his duty with a courage and intelligence above all praise, but money is wanting; Egypt can not, in its period of crisis, contribute to the expenses that might be withheld, even by those countries most enlightened, as a matter of luxury. M. Asparo ought to be assisted in his double mission, one of which is not to permit the interruption at all of the series of excavations undertaken by M. Mariette; while the other is to establish a system of protection, so that the monuments now openly exposed to the visit of travellers shall not be too much defaced. All those who have visited Egypt, or who think of visiting it, or who simply have at heart the preservation of the monuments of antiquity, should send him contributions for that purpose. Sixty centuries of history are interested in this; the honor of France, we may add, is implicated."

Houses in the Health Exhibition.—One of the chief attractions of this Exhibition is the Dwelling-house group, on which the *Building News* comments: "One of the most noticeable and pleasing features of the Exhibition, and which may appropriately introduce our notice of the modern dwellings, is the admirable reproduction of an Old London street, erected from the drawings and under the superintendence of Mr. George H. Birch, A.R.I.B.A. A representation of the manner in which our forefathers were housed in the city before the Great Fire had accomplished its work in the reconstruction of the houses of London was a happily-conceived idea, and much praise is due to the promoters, and also to Mr. Birch, for having so thoroughly set before the visitor the conditions of life in the capital of that period. To make the representation as truthful as possible, a proportionate scale had to be fixed. Adopting a narrow width of street, the houses have been erected to preserve the proportion which generally existed in the old city streets, and although in some cases the houses are rather smaller than the originals probably were, many of them are as nearly as possible reproductions in point of size. The street is composed of various houses, grouped together to form a quaint effect; to render the perspective more realistic and telling, the width between the houses has been narrowed at one end, and the irregularity of the old thoroughfare has been obtained by a bend or elbow, while the houses themselves are not set out to a formal line, but project and recede here and there so as to realize the tortuous course of the old thoroughfare. This cleverly grouped collection of old houses represents several well-known inns, houses, and gateways, of which they are copies, more or less accurate, from old drawings, engravings, and descriptions. Constructed chiefly of studwork, lath, and plaster, the combined skill of the architect, artist, and scene painter has been called into requisition, and the result is so realistic, the old masonry and timber and tile work have been executed with such inimitable art, that the whole is as perfect an illusion as it would be possible to fabricate in so short a time as these houses have taken to be erected."

It is interesting to notice the disposition of foreign peoples as manifested in their contributions for the support of royalty. In Sweden, where the population is only 4,578,901, the tax is $6,090,000 for the support of the royal families. The total revenue is only $20,581,940, and thus nearly 30 per cent. of the revenue goes toward the maintenance of the crown. Denmark pays $311,105 for the luxury of a king; Greece, $260,890; Holland, $312,500; France pays its President only $180,000; while the German Empire allows its Emperor, kings, and others of that class $16,538,550, which is about 3 per cent. of the total revenue. Russia is taxed $12,250,000 for support of its Emperor, and Great Britain $4,491,015. Turkey pays $16,250,000, or nearly 27 per cent. of its total revenue. Spain allows only $2,000,000, which does not bear out the popular notion about the extravagance of that country. The lowest salaried ruler is the President of Switzerland, who receives $3,000 a year. The countries paying the largest percentage of the revenue for royalty and army and navy are: Italy, 20; Austria and Spain, 21; France and Germany, 21; Denmark, 25; Russia, 35; England, 37; Sweden, 59; and Turkey, 65.

Action of Sunlight on Glass.—The action of sunlight on colorless and colored glass—both that which is polished and that which is rough—is so marked as to have received lately the special attention of chemists. Very perceptible changes have been observed—that is, from colorless to yellow, and from light yellow, green, or blue to the darker or mellow shades of these colors—and specimens of coffee-colored glass are instanced which, in the space of only five years, had materially changed to rose and amber colors. It is thought that the rich, mellow tones, so much admired in the old and richly-stained cathedral windows, are due to the action of the sunlight in a long succession of years, in toning down what were most probably comparatively bright or harsh colors originally—the action, it is supposed, may be a photo-chemical one. Investigations made in this line show, among other practical results, that manganese should be employed in glass to be used for lighthouse purposes; white glass, containing even as small as 5 per cent., exhibits no change.—*Decorators' Gazette.*

A Man Without a Face.—There is to be seen in Landrecies, in the Department

of the North, France, an invalid artillery soldier, who was wounded in the late Franco-German war, when he was terribly mutilated by the bursting of a Prussian shell. The man's face was literally blown off, including both eyes, there being left behind some scanty remnants of the osseous and muscular systems. The skull, which is well covered with hair, was left intact, so that the man had a most hideous and ghastly appearance. This disfigurement has been completely concealed by a mask, which was made for him under the direction of the principal medical officer of Val de Grâce, in Paris, whither he had been transferred from the field ambulance. The mask was constructed by a surgeon-dentist named Delalain. It includes a false palate and a complete set of false teeth; and it is so perfect that the functions of respiration and mastication, which were necessarily and imperfectly performed, are almost completely restored to their normal condition, and the voice, which was rather husky, has resumed its natural tone. The man speaks distinctly, and the sense of smell, which had entirely disappeared, has returned, and he can even play the flute. He wears two false eyes, simply to fill up the cavities of the orbits, for the parts representing the eyes in the mask are closed. In fact, the mask is so well adapted to what remains of the real face, as to be considered one of the finest specimens of the prosthetic art that could be devised.

The man himself, whose name is Moreau, and who is in perfect health, is looked upon as a living curiosity, and travellers go a good deal out of their way to see him. His face, or rather his mask, is, of course, without any expression, but his special senses, particularly that of touch, are extremely developed, and he goes by the sobriquet of "l'homme à la tête de cire" (the man with the wax head). He wears the military Cross of Honor, and delights to talk about what he had gone through during the war. To add to his meagre pension he sells a small pamphlet containing a full description of his wounds, and of the apparatus that has been so skilfully devised as to render him at least presentable to his fellow-creatures.

Singular Conduct of Glass Tubes.—A most remarkable phenomenon is produced in glass tubes placed in certain circumstances. When these are laid before a fire in a horizontal position, having their extremities properly supported, they acquire a rotary motion round their axis, and also a progressive motion toward the fire, even when their supports are declining from the fire, so that the tubes will move a little way upward to the fire. When the progressive motion of the tubes toward the fire is stopped by any obstacle, their rotation still continues. When the tubes are placed in a nearly upright posture, leaning to the right hand, the motion will be from east to west; but if they lean to the left hand, the motion will be from west to east, and the nearer they are placed to the upright posture, the less will the motion be either way. If the tube be placed horizontally on a glass plane, the fragment, for instance, of coach-window glass, instead of moving toward the fire, it will move from it and about its axis in a contrary direction to what it had done before; nay, it will recede from the fire, and move a little upward when the plane inclines toward the fire. These experiments succeed best with tubes about 20 to 22 inches long, which have in each end a pretty strong pin fixed in cork for their axis. —*Pharmacist and Chemist.*

Facts and Simple Formulæ for MECHANICS, FARMERS, AND ENGINEERS.—Two hundred and seventy cubic feet of new meadow hay and 216 and 243 feet from large or red stacks will weigh a ton; 297 to 324 cubic feet of dry clover will weigh a ton.

Laths are 1¼ to 1½ inches by 4 feet in length, are usually set ½ of an inch apart, and a bundle contains 100.

A tarred rope is about one-fourth weaker than untarred white rope. Tarred hemp and manilla ropes are of about equal strength. Wire rope of the same strength as new hemp rope will run on the same-sized sheaves; but the greater the diameter of the latter, the longer it will wear. One wire rope will usually outlast three hemp ropes. Running wire rope needs no protection; standing rigging should be kept well painted or tarred.

The coefficient of friction of leather belts over wooden drums is 0·47 of the pressure, and over turned cast-iron pulleys 0·28 of the pressure.

A mixture of 9 parts phosphate of soda, 6 parts nitrate of ammonia, and 4 parts dilute nitric acid is a freezing compound which will cause a fall in temperature of 71° Fah.

Three-fourths of a cubic foot of water evaporated per hour will produce 1 horse power.

Cold-blast iron is stronger than hot blast. Annealing cast-iron diminishes its tensile strength.

The safe load in tons which an iron chain will withstand equals the square of the diameter divided by nine.

America's Fifteen Inventions.—An English journal frankly gives credit to the American nation for at least fifteen inventions and discoveries which, it says, have been adopted all over the world. These triumphs of American genius are thus enumerated: First, the cotton-gin; second, the planing-machine; third, the grass-mower and grain-reaper; fourth, the rotary printing press; fifth, navigation by steam; sixth, the hot-air or caloric engine; seventh, the sewing-machine; eighth, the India-rubber (vulcanite process) industry; ninth, the machine manufacture of horseshoes; tenth, the sand-blast for carving; eleventh, the gauge lathe; twelfth, the grain-elevator; thirteenth, artificial ice manufacture on a large scale; fourteenth, the electro-magnet and its practical application; fifteenth, the composing machine for printers.

Physical Changes in England.—It is not impossible that the climate has actually changed since England was covered with bush and swamp. It seems certain that the rainfall is less, and probable that it is more evenly distributed; that there were greater floods and less fog in the twelfth and fourteenth centuries. A year in which the snow only lay for half a day during the winter months is recorded by one of our chronicles as a miracle; and a frost like that of A.D. 1281, when men skated from Lambeth to Westminster, and the great masses of ice breaking up bore down five arches of London Bridge, has no parallel later than Charles II. Earthquakes were violent and frequent. In the ten years from A.D. 1825, no fewer than five are recorded, two of which are said to have been great and horrible, while a third was so violent that it shook down several churches in Kent,

> "Chambers, chimneys, all to burst,
> Churches and castles foul 'gan fare,
> Pinnacles and steeples to ground it cast,
> And all was for warning to be ware."

Even volcanoes are recorded though not in England itself. A great one broke out in Guernsey during the reign of Henry III., flames bursting up out of the sea, consuming large parts of the cliffs, and sending showers of ashes over the land. C. H. PEARSON.

There is a controversy as to whether an eagle will sit on a limb and allow himself to become encased in ice. Mr. Edward P. Roe related an instance of that kind, and his accuracy was questioned. John Holder now tells how, at Bloomington, Ill., he had an eagle brought to him covered by ice so completely that it could not move legs or wings, fell from the tree on which it had perched, and was captured by a boy.

To Destroy the Orange Scale INSECT.—Some of our Florida readers may thank us for the following recipe which is said to be used with great success in British Guiana:

Pure kerosene	1 gallon.
Condensed milk	1½ pints.
Water	3 pints.

Mix the milk and the water before adding the oil, and churn until the whole solidifies and forms a "butter." In applying this preparation, the kerosene "butter" should be diluted with from twelve to sixteen times its quantity of water, and then be applied immediately; for if it is allowed to stand, the "butter" rises to the surface and the mixture is imperfect. The insects can be more readily combated by insecticides during the very short period in which they are active, just after emergence from the egg.

Progress of Agriculture.—Of all the sciences none, within recent years, has so quickly emancipated itself from the fogs of empirical conjecture as that of agriculture. Up to the end of the last century, even, people believed that air, water, oil, and salts were the sources of plant nutrition. Wallerius, Bergmon, Palissy, Davy, De Saussure, and Sprengel contributed discovery after discovery, investigation after investigation, but their work was scattered and little known outside their laboratories. It was reserved for the genius of Liebig to unite all these fragments of truth; but it was not till 1840 that he produced his great work, "Chemistry in its Application to Agriculture and Physiology," and thus gathered, in concrete form, the materials which are the basis of a now great and rapidly growing science. It is hard to realize that agricultural chemistry has found its application for but forty-four years, so clearly are its benefits before us in tangible form. But on the other hand this only serves to indicate to us how vast must be the results yet to come, when agriculture, through the instrumentality of its knowledge, shall have become in its turn as exact as its sister sciences, and as susceptible of being taught and learned in the same manner as they. And to attain this much desired end, our schools and colleges, under the guidance of far-seeing men, are doing splendid work.

Why Photographic Portraits ARE RARELY GOOD LIKENESSES.—The fact that photographic portraits are so rarely good likenesses is attributed, by a writer in *Chambers' Journal*, to the circumstance that by photography it has hitherto been found impossible to give colors their true shade value. What is meant by this is that yellow to the eye is a brilliant light tint, but in a photograph it is reproduced almost black; red, instead of giving the idea of fire and light, comes out black, and blue photographs perfectly white,—such changes, of course, playing sad havoc with complexions and contrasts of color generally. According to a recent French process, however, the trouble or drawback in question can be obviated, the plan consisting simply in the addition to the usual ingredients of the sensitive photographic surface of one per cent. of eosine. A modification of the crystoleum process is now being introduced. The photograph, printed in the usual manner on paper, is first of all immersed in a mixture of naphtha, paraffine, mastic drops, ether, and vinegar; this treatment makes it quite transparent, so that body colors in oil, if laid broadly on their places on the back of the picture, show through with good effect.

A Good Stain.—Brunswick black thinned down with turpentine until it has attained the right tone and color, will, if a little varnish be added, about one-twentieth of the bulk of the black and turps, prove a stain for imitating walnut or teak-wood. There is no difficulty in getting the mixture to dry hard, and it will take varnish over it first-class.

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ANTECEDENTS OF PHRENOLOGY.

FROM time to time attacks are made on the Phrenological system by writers who make claim to scientific attainments. Whether or not at this day such writers are actuated by a desire to emulate the example of Dr. Brown, or Mr. Jeffery, who made the pages of the *Edinburgh Review* the medium for publishing their hostility to Gall, Spurzheim, and Combe, and the principles taught by that eminent trio, we are not prepared to say, but certain it is that these latter-day opponents of Phrenology rarely show an acquaintance with the subject sufficient to warrant them in criticising its principles and methods. In nearly every case, too, the attacking party has exhibited weaknesses of information with reference to the details of brain anatomy and the most recent contributions of observers to the literature of neurology.

Not long since our attention was directed by a correspondent to an article published in the *Globe-Democrat* of St. Louis, by an anonymous writer, who makes a considerable display of learning, but learning that is diffuse and much blended with conjecture. He opens with allusions to several of the "old philosophers," offering in a very few lines what purports to be a review of their opinions on nervous structure and function, but which seems to us to be little more than the wholesale relegation of men, whose influence on ancient and mediæval thought can scarcely be estimated now, to the domain of "fanciful speculation." He evidently forgets that science, both physical and mental, had its forerunners in ancient time, as the monuments of Egypt and the literature of India and Greece abundantly testify. Thales, although he lived 600 years before Christ, enunciated a theory of the universe of which the Galilean system is the modern analogue. Democritus formulated a view of the composition of matter that is almost identical with that of the modern atomic theory. Hippocrates presented an elaborate system of treating disease that is represented to-day in the evolution of "rational" medication. If the *Globe-Democrat* writer had examined the literature of Greece he would have found that it made a practical application of the views entertained by Plato, Aristotle, and others in respect to their ideas of mind function. He mentions Aristotle, in four lines, to the effect that this greatest physiologist of antiquity "supposed the heart to be the seat of the 'rational soul,' and that the brain was cold, bloodless, and inert, of no use at all except to cool the heart," whereas Aristotle formulated a carefully studied system of brain function in direct relation to the faculties of mind, dividing the latter into five grand divisions of common-sense, imagination, judgment, reflection, and memory. He held definitely that the ventricles or cavities of the brain were the receptacles of ideas; and in laying out his scheme, presented the

first authentic system of brain localization known to science. He designated the anterior parts of what are now known as the lateral ventricles, judging the cavity formed by them to be correspondent with the forehead, as the seat of common sense. Imagination, judgment, and reflection he allotted to the cavities in the middle region of the brain, and explained that these parts communicated with the anterior openings by small channels, through which the impressions made on the five senses were transmitted to the interior faculties. The third ventricle or occipital region he devoted to memory.

That Aristotle was of the opinion that the development of function gave form to the head, is shown clearly enough in his treatise on Physiognomy. To quote a passage: "Those who have a large head are sagacious like dogs; those who have a small head are stupid like asses; those who have a conical head have no shame, are like birds with curved claws."

The opinions of Aristotle affected most powerfully, as every student of history knows, the thought of all subsequent ages; and many eminent for wisdom in theology or philosophy or medicine, appear by their writings as extant to have accepted his system of brain division. Some extended it by setting off additional regions in correspondence with what they deemed to be essential faculties. But when we look into the art and literature of the Greek physiologist's time, we are inclined to impute to him the character of an expositor rather than an originator of physiognomical principles; because the writers and artists in his day were much given to illustrating types of character by outline and expression of the head and face, as well as by attitude and conduct. When the Athenian sculptor would represent genius or intelligence in his marble, he gave a large, projecting head to his figure. In the different characterizations of Jupiter, Apollo, Minerva, we find the forehead large in proportion to the remainder of the head. But in divinities like Bacchus, Venus, Pan, to whom a sphere mainly sensuous was assigned, the heads are portrayed with large occiputs, and relatively small foreheads. So too the gladiators and athletes were portrayed with massive side and back heads. One of the poets, Apollonius of Rhodes, describes Medea in his *Argonantes*, as suffering from pain in the region of the cerebellum, because of her affection for Jason. Thus: "The fire that devours her, attacks all her nerves and makes itself felt even behind her head in that spot where pain is most poignant when an extreme fervor seizes on all the senses."

Here is a plain intimation by the poet of a belief, current at least among the learned of his day, respecting the seat of an emotional sense in the head.

We are of opinion that what was received among the Greeks 2,000 years ago, with reference to a relation between the form of the head and mental function, was due to ideas that had been derived from much earlier periods, and that there were wise men far back in the past who believed that the brain was not only the centre of human thought, but gave shape and character to its osseous envelope. The most ancient literature, that of India, treasured a saying of this nature, "God has writen the history of every man upon his skull."

To those who give much heed to the study of mind in its individual relations, this epigram or proverb has an important significance. It awakens from the long

sleep of *æons* an array of sages who possessed something of the character of the mind-reader; it suggests the probability that there was some ancient Gall, who grasped the truth we profess, and so faithfully applied it in his teachings, that a school of thought was established and had its period of flower and fruitage, yet decayed with the blight that fell upon India; but nevertheless left an influence in the traditionary axiom that survives, "God has written the history of every man upon his skull." Mark the definiteness of this statement and the directness of its application. It has a scientific precision that separates it from all effusions of mere sentiment or fancy, and like other pearls of ancient wisdom that survive to our day it bears the stamp of deduction synthetical and logical from premises of nature's own forging in the human organism.

SOME MEDICATED SPRINGS.

ON the approach of warm weather we are greeted with circulars from different sections of the country that testify to discovery of new fountains of water containing wonderful properties. Aside from the common earthy matters, like soda, lime, silica, incident to springs, but which are usually set forth in the circular with emphasis, as if they were of peculiar and unusual importance, other substances are mentioned in the analyses, and their virtues highly extolled. For instance we are informed on the authority of some one we never heard of, notwithstanding the numerous capitals at the end of his name, that owing to the presence of magnesium and sulphur and iron and sodium and barium in the water, they who use it internally and externally will rapidly overcome chronic infirmities like rheumatism, or kidney troubles, or heart disturbance, or lung weakness, or liver congestion; in fine, any disease will find positive discouragement to its further development when brought in contact with the magic water.

A year or two ago a wonderful "medicinal spring" was discovered by an enterprising man somewhere on Long Island, and capital was obtained for building a hotel on its site, and for advertising its unspeakable virtues. A long analysis, bearing the name of a chemist, was paraded in the newspapers. Among the constituents of the diluted medicine, was sulphur in three or four combinations, the very reading of which brought a noxious taste to our tongue, and a disagreeable odor to our lips. It was said that the water was so strongly impregnated with "medicinal" gases that they were decidedly apparent to taste and smell; but this feature only proved the analysis, and showed the "value" of the water. Well, people sick and well went to the place, and tried the water, but such was its "strength," that very few could adapt themselves to it. Some there were who insisted that the proprietor was a humbug, and his spring nothing more than a ditch of rottenness. It came to pass that some fault in the drainage from the "institution" compelled the proprietor to make an excavation, and while the workmen were digging they suddenly broke into an old vault that had probably served the purposes of two or three generations of farmers, but had been covered over and forgotten. The fetid ooze of this vault made the earth rank for many feet around, and as the wonderful spring was but twenty-five feet or so distant, and lower down, the

source of its peculiar odors and saline virtues was at once divulged. There were very few patients in that "sanitarium" next day.

Another case, of a similar character, has been reported by a Brooklyn newspaper: One Mr. R——, while digging on the bank of a well-known stream near that city, struck a fountain of "mineral water." Thinking that he had discovered a source of wealth, a regular Baden-Baden, he applied to a chemist of ability for an analysis of the water; and to make sure of every feature of the discovery, conducted the scientific gentleman over the ground of the future spa. The chemist took a bottleful of the liquid to his laboratory, and in due time sent Mr. R—— the following

"ANALYSIS OF THE NEWLY-DISCOVERED NEWTOWN CREEK MINERAL SPRING WATER.

Salt-water	750
Coal oil	34
Extract of dead dog	13
Precipitate of cat	24
Oxide of hoop-skirt	17
Sesquioxide of barrel hoops	10
Quintessence of glue	14
Decomposed bone	56
Infusion of soot	8
Triturated paint screenings	11
Boarding-house butter	9
Fish residuum	19
Conglomerated sediments	23
Other nasty things	12
	1000

"H. K——, Analytical Chemist."

There are many widely-advertised and much-patronized medicinal springs in different parts of the country that have little more claim for healing virtue than this, but their analyses are not so plainly set forth.

THE NEGRO SOUTH.

NOT long ago one of our prominent Monthlies published a sort of symposium, in which the opinions of diherent writers were given with regard to the condition of the Negro in the South. It seemed to be the general opinion of these writers, that the Negro was in a depressed state, and not contributing at all to the development of the community at large. Some very distressing statements were made with reference to his immorality, his shiftlessness, and so on; and it seemed a matter of reasonable inference that emancipation had not brought about a very happy state of affairs for the colored man or for the white. Within a few months we have been given a different view, through the glasses of one of our educators, Professor Greener, who has been making an extensive tour through the Southern States, and his reports as given by the press are deemed worthy of high respect. In brief, Professor Greener finds an increasing pride of race, an independence of character, an improvement in dress, a stronger desire for business pursuits, and a growing thirst for education among the colored people. He declares that the missionary teachers have accomplished much, that they have helped the Negro to his feet, and have opened places of employment which in slavery were entirely closed to him. Every mechanical vocation claims him for a worker; he is efficient, and needs but further opportunities and encouragement to place himself on higher levels of usefulness. Some have advanced far enough in mental culture to take part in legislation and politics, a sphere requiring a fair degree of intellectual development and practical sagacity. At the late Republican Convention held in Chicago, there were upward of seventy-five colored men representing different electoral districts. One of these, Mr. Lynch, was of sufficient prominence and ability to be made Temporary Chairman of the Convention

Our Mentorial Bureau.

To Our Correspondents.

QUESTIONS OF "GENERAL INTEREST" ONLY *will be answered in this department. But one question at a time, and that clearly stated, must be propounded, if a correspondent shall expect us to give him the benefit of an early consideration.*

TO OUR CONTRIBUTORS.—It will greatly *aid the editor, and facilitate the work of the printer, if our contributors generally should observe the following rules when writing articles or communications intended for publication:*

1. *Write on one side of the sheet only. It is often necessary to cut the page into "takes" for compositors, and this can not be done when both sides are written upon.*

2. *Write clearly and distinctly, being particularly careful in the matter of proper names and quotations.*

3. *Don't write in a small hand, or in pencil, as the compositor has to read it across his case, a distance of nearly two feet, and the editor often wants to make changes and additions.*

4. *Never roll your manuscript or paste the sheets together. Sheets about "Commercial note" size are the most satisfactory to editor and compositor.*

5. *Be brief. People don't like to read long stories. A two-column article is read by four times as many people as one of double that length.*

6. *Always write your full name and address plainly at the end of your letter. If you use a pseudonym or initials, write your full name and address below it.*

WE CAN NOT UNDERTAKE TO RETURN UN*available contributions unless the necessary postage is provided by the writers.* IN ALL CASES, *persons who communicate with us through the post-office should, if they expect a reply, inclose the return postage, or what is better, a prepaid envelope, with their full address. Personal matters will be considered by the Editor if this is done.*

WANTS TO BE A PHYSICIAN.—C. G. M.—The young lady has a good physical organization, a lively, elastic temperament, ambition, will, and independence, with good observing organs, and ready judgment. We do not see any objection, so far as the portrait is concerned, to her persevering in the direction she has marked out for herself.

ACTORS AND ACTING.—H. A.—One to be a good actor, especially in the dramatic line, requires a well-developed brain. The parts that he must represent are many-sided, therefore all or nearly all of the mental faculties are brought into requisition, and the more thoroughly they are developed, the more nearly perfect will be his rendering. Of the two men to whom allusion is made, Booth is the superior intellectually, by inheritance and by culture; he has a finer type of organism. Mr. McCullough is a man of stronger physical capabilities, but has not the fine sense of the higher phases of sentiment that Mr. Booth possesses, yet Mr. McCullough has greatly improved since he first came before the public, and much credit is due to him for what he has accomplished.

We can predicate of ordinary photographs the general characteristics of a person, and to a degree their adaptations.

CAPITAL PUNISHMENT AND PHILOSOPHY.—DR. T. M. B.—One's view of this subject depends upon his organization. Pure philosophy is based upon reason, and reason is impartial or just. Now justice would render a verdict in a case of murder that would be more nearly in accordance with the statute that condemns the murderer to suffer the penalty of death. Mosaic law is looked upon as rigorous and severe, yet in the light of reason it is founded upon the principles of justice. In modern law the sentiments of benevolence and sympathy, or extenuation and allowance enter; and as a consequence, modern law is not very severe or cruel. A man's view, therefore, of what punishment should be inflicted for crime is dependent upon the development of his sentiments. One with large Conscientiousness and moderate Benevolence would be likely to urge a full measure of the punishment, or a penalty that would approximate the nature of the crime—would reward as it were in kind. One with large Benevolence and moderate Conscientiousness would be likely to urge extenuating circumstances, and let the offender off with but a moderate punishment.

CAUSE OF CHOLERA.—C. W. K. W.—We do not think that Asiatic cholera is caused by fruit eating; on the contrary, we think that its development is due to dietetic habits that do not include sufficient fruits. In summer, if one partake abundantly of fresh fruit, say at breakfast and dinner, he will be likely to have a free digestion and orderly bowels, the juice of the fruit being conducive to their action; and a good digestion is not compatible with those biliary disturbances to which cholera is related. If one be careful in his diet he is not likely to contract such diseases.

MEASUREMENT OF VITALITY.—C. R.—The statement of Dr. Powell is not a trivial one. Broad heads are generally indicative of vital vigor. A man with a broad head is inclined to be more active, more executive and in earnest, than one with a narrow head. The observation of "shoulder hitters" and "sporting" men as a class, would warrant Dr. P.'s conclusion, for the reason that, as a class, the cranial fossæ in the heads of such men are deep. The brain in the neighborhood of the ears dips much below the plane of the superciliary ridges. Phrenology, as you know, recognizes a special organ called Vitativeness, back of the ear, indicated in part by the extension of the mastoid processes. This extension is related to the fulness or breadth in the temporal region. Again, men of strong organisms, with the Motive temperament well devel-

oped, have projecting brows; the length from the opening of the ear to the eyebrows is long, and with that temperament there is usually associated fulness in the temporal region, so that the measurement which you speak of, "from the centre of the external orbit of the eye to the orifice of the ear," around the head, is considerable.

GAMBETTA.—C. J. M.—Shortly after the death of this eminent Frenchman we published two or three items on his brain, in answer to inquiries similar to yours. The facts with regard to the examination of the brain were by no means satisfactory; that is, there was no full account of the method pursued and the results obtained, and as a consequence the statement of its weight gave occasion to mistrust. In life, M. Gambetta carried a very large head on his shoulders, and warranted the inference that he possessed an unusually large brain; the proportions of his head were matters of comment. He died a victim of a wasting disease that doubtless affected the nervous system seriously, and if his brain were not examined soon after death, it is most likely that alterations occurred in the brain tissue, by which a large amount of fluid was formed, the delicate nervous tissue disintegrated and dissolved, and what was left in solid mass but poorly represented what had once been in the skull in vigorous life.

CRITICAL ORGANIZATION.—A. C.—A good development of the upper range of intellectual organs is necessary to critical character; that is, a good development of Causality, Comparison, and Mirthfulness or wit; a fair development of the perceptive faculties is of great assistance, supplying the material for criticism and analysis; of course people differ in their critical adaptation, and that is dependent upon the organization in other respects.

ROUND SHOULDERS.—H. P.—If your occupation is such as to produce bent and stooping shoulders, unless precautions are taken to correct the tendency you should make use of means for that purpose. When out of doors and not at the desk, straighten up, throw back the shoulders as far as possible, breathe deeply, walk rapidly, and wear, if you think it necessary, braces properly adjusted. Some one suggests a mode of exercise as helpful in correcting the tendency to stoop, to wit: Hook the fingers of the hands together, and raise the elbows as high as the shoulders and pull strongly. By doing this frequently, the muscles of the shoulder-blades are strengthened, and thus serve to keep the shoulders in normal condition. Lie down on the back and raise the chest a few times, by pressure of the head against the cushion or pillow on which it is resting. This exercise will strengthen the muscles of the neck, and give it more steadiness in the erect posture.

THE NOSE IN MARRIAGE.—B. C.—The nose is not of so much importance as the temperament in marriage; although there is a relation between the nasal organ and temperament. We do not go so far as to say that persons having similar noses should not marry, but if, associated with a similarity of nose, there were the same complexion, color of hair and eyes, and a nervous temperament, we should dissuade an alliance between the parties. There may be very marked differences in temperament, and yet nasal similarity. We often meet with straight, regular noses with the Motive temperament, and so too with the Vital; they are more frequent, to be sure, with the Nervous or Mental.

VEGETARIAN RACES. — L. P. — Yes, many illustrations can be furnished from mankind, in support of statements that have been made in these columns, to the effect that it is not necessary that man should eat the flesh of animals in order to attain a good physical development, and be healthy and strong. It is claimed that man in the early periods subsisted altogether upon the products of the soil, and cite the story of Adam and Eve in the garden as a basis of fact. The Maningo tribes, Abyssinian, Nubian, tribes in India, some of the Turkish tribes, the Hindoos, and people of Eastern Arabia, and the inhabitants of many of the Pacific Islands, live almost entirely upon farinaceous food, fruits and vegetables, and for the most part are vigorous, well developed, symmetrical, active, and strong. It is said of the ancient Roman soldier, that he would march all day, laden with his heavy armor and camp equipage, and needed but a pound or two of barley for his subsistence. So it was said of the middle age Turkish soldier; his ration of wheat or barley provided all the strength he needed for marching and fighting in the long campaigns that were incident to those old conflicts between the Turanian and the civilized European.

LETTER-WRITING BETWEEN STRANGERS.—C. S. M.—We think that it is improper for ladies and gentlemen totally unknown to each other to correspond by letter. Those who are given to such a practice, as a class are not above mean and wicked motives. We think decidedly that ladies of "the right stamp" are not likely to engage in it; and if any young man or young woman of correct principles is not able to find suitable companions in the neighborhood where he or she lives, the fault is not so much in the community as in the persons themselves.

SIXTH AND SEVENTH BOOKS OF MOSES.—J. S. Flory, of Hygiene, Colorado, writes in answer to F. H.'s inquiry about the Sixth and Seventh Books of Moses: "There is such a work advertised in some places (under that name at least). It is a work that borders on heathen mythology, and of no consequence to men of learning. It is a veritable slander on the old patriarch and servant of God."

WHAT IS MY TEMPERAMENT?—T. M.—If you came to our office we could answer your question very soon and without charge, as we have no price for such a response—unless you wished to consume much of our time. In making an examination from portraits and written out, a reasonable charge is made. Tell us what you want and we will respond.

HEREDITY THROUGH MILK.—L. K.—N. O.—No, we think that mere nursing has very little to do with the inheritance of qualities. There may be stomachic conditions, induced by irregular and unwise treatment, that have an influence upon the nervous system, rendering it irritable and weak, because the brain is insufficently nourished. The child gets organization physical and mental from its parents originally, and training moulds organization.

What They Say.

Communications are invited on any topic of interest; the writer's personal views, and facts from his experience bearing on our subjects, being preferred.

LONGFELLOW AND TENNYSON.—Perhaps, in character and authorship, no two poems better admit of contrast than the "Enoch Arden" of England's poet-laureate, and the "Evangeline" of our own. They were written by men of equal fame, and may be of equal talent. Each was meant to be a romance "that might live"; each pictured constancy. In such a contest, we might well look for doubt and disagreement among the judges. The result is the reverse. The laurels have fallen to Tennyson.

We conjecture that the influence of an American atmosphere should have given freer play to Longfellow's thought, and that the pent-up English air should have clogged the wheels in Tennyson's mind. As before, the result shows the reverse. In point of comparison, the groundwork of the American poem betokens less originality than does the other. We have many novels that embody the adventures of Evangeline and Gabriel. Indeed, as to this point, the poem is even inferior to many of our magazine tales. From beginning to end, there is no striking feature. On the other hand, "Enoch Arden" continually surprises us. At first, we confidently expect the reunion of husband and wife; Phillip and Annie marry. We then look for news of Enoch's death; he, however, returns. We believe he will reclaim his wife; he does not. We then fear that Annie will never know he did return; again, the sequel is otherwise. It all differs from the usual drift of our current literature.

Tennyson appeals to the feelings; Longfellow, to the eye. Perfect naturalness pervades Enoch Arden. Each event, each act, seems just such as may often have been repeated; just such as we ourselves may some day meet, excepting, perhaps, the unusual, Crusoe-like shipwreck. The tale seems real, and we lose ourselves in a semi-belief that it is true. With Evangeline, the case is otherwise. Nothing could seem more unreal than the exile of the whole community, and nothing more barbarous than the burning of the town. Yet, such is supposed to be ordered by a monarch of the eighteenth century, and executed in full sight of all Christendom. Nor can we believe that, after so long wandering over a broad country, Evangeline's party would chance to find the settlement of their friends; even less, that Gabriel would happen to pass them as he left the region. Evangeline's pursuit, its endless expectation and disappointment, seem simply like well-adjusted machinery. From the poet's tone in the description, I believe he was himself aware of this resemblance. The final meeting, afar in an Eastern hospital, is in the ratio to probability as one is to ten million. The poem has little in common with human experience, and therefore our sympathies remain asleep. Indeed, we grow so used to the idea of mechanism, that, forgetting the sorrow of the story, we have no wish that any feature were different, lest the coadjustment of the part be disturbed.

Enoch Arden dwells upon particulars; Evangeline deals nearly always in the general. Our memories of life are only links in a chain of particulars. As we view a full painting, our impression never equals that we get when we come closer and note each expression. Coupling these two facts, we are able to see why Tennyson pleases most. If we add the point touched above, lifelike groundwork, the two features combine to form one whose worth is as much greater than the sum-worth of both separate, as the value of the diamond is greater than when halved.

A story's ending determines much the reader's satisfaction. The interest excited within us, like our regard for a friend, demands that the hero's last desire be realized. There are popular books which disregard this law; but, rather than being even exceptions, their popularity arises from other merits, and, were the absent merit present, their popularity would invariably be greater. I think we here find a principal reason why the Arabian Nights Entertainments never grows old. Now, Enoch Arden is a hero. His last ruling desire is that he shall keep his secret till he dies. His noble object inspires our hope that he may succeed; and, he does succeed. The secondary character, Annie, has no expressed desire; but, it is evident that, in her calm afterthought, she is glad Enoch did not come to her; hence, glad that he is dead. In the case of Evangeline after the two meet, neither has an expressed desire; but, each betrays an intense emotion, consistent only with a longing for Gabriel's recovery. Yet, he dies. Two lives of repeated disappointment end in hopelessness.

We all admit the force of purely indirect influ-

ences. They always affect, often control, the judgment. Because unseen and usually unknown, they are the more potent. Two such act to bias in Tennyson's favor. One is that our literature always makes woman the heroine, and man the secondary character. When, as now, man is made hero and woman secondary in character, the mind of the reader is pleased by the contrast. The other influence is of like nature; in that, man is here given the first position, the latent germs of *egotism* are stirred! The unwritten compliment to the hero seems extended to the whole sex; therefore, to the reader as one of that sex. The *man* is gratified in a manner analogous to the feeling inspired within us by praise for our own nation. We may thus explain the pleasure *ladies* find in ladies' magazines, whose sketches always canonize some *heroine*.

Ere I close, it would be unfair not to speak a redeeming word for Mr. Longfellow; and, I am far from assuming that his poem has no minor excellencies, or Tennyson's no minor faults. In Evangeline there are many felicities of expression, poetic beauties; in Enoch Arden there are few. Possibly the one sought them more than did the other. Be this as it may, it will hardly be disputed that Longfellow is the better able to write them.

"Men, whose lives glided on like rivers that water
the woodland,
Darkened by shadows of earth, but reflecting an
image of heaven." AL WARE.

INTELLECT IN RELIGION.—"I said therefore unto you, that ye shall die in your sins: for if ye believe not that I am *he*, ye shall die in your sins." When I read these words of *Jesus* to the doubting Jews, the question arises, How can I believe on Jesus? To this question, I answer that evidence is the foundation of belief,—the fact of the one necessitates the fact of the other. Therefore if I believe on the work and mission of Jesus it is because I can not disbelieve. The evidences of religion lie in the constitution of man, the physical world, and are set forth in the Bible, and it is the province of the human intellect to lay hold of the evidences herein contained. The truths of religion are not axiomatic truths, nor are they positive truths, *i. e.*, capable of logical demonstration. The man who would accept nothing as truth or knowledge that could not be *proved*, like a problem in mathematics, would admit that he could *know* but little, and as long as he lived he would be inconsistent with himself, for his sphere of action must be much larger than his theory would allow. The husbandman sowing the seed can not *prove* the harvest. The blacksmith working at his anvil can never prove that the *iron* does not feel pain from every stroke of the hammer, yet it is well they believe in the harvest and that iron is without sense. The Hebrew Psalmist, full of joy, sang praises unto God though he could not prove the origin of that joy; yet had he not a reason for the hope within him?

Religion is progressive just as the human intellect is progressive. History shows this. The religion of the first and tenth centuries is not the religion of to-day in systematic formulation; neither will the religion of to-day be the religion of the twenty-fifth or thirtieth centuries (should the world stand till that time). As man advances in knowledge, he is capable of coming nearer to God. He is constituted with the faculties of Veneration and Spirituality, which in their blindness reach after God. These faculties combined with Firmness give the dogmatic element in religion; but when not guided by the intellect, dogma leads to superstition and persecution. A blind faith is no better than skepticism; and in order to be delivered from these, let us study the evidences. JESSE B. MOWRY.

THE TWO LECTURES.—A while ago I attended a lecture entitled "American Homes." An attractive subject certainly; and as the lecturer was highly recommended, and is quite widely known, and was thoroughly advertised, he had a large audience. This man carries the prefix Rev. and quite a number of affixes to his name, I believe; but such things are so common now that one fails to notice them. He professes to be a preacher of the gospel; but for wholesome distinctions between right and wrong, honesty and dishonesty, I should prefer, as a hundred to one, to have boys just coming to manhood attend the play called "Josh Whitcombe," rather than that lecture. I have never attended many plays, and am opposed to theatrical performances, but in what plays I have attended I have never heard anything so demoralizing as this "preacher's" talk. He described "the man at home and the man in a business transaction," which involved an amount of cheating and lying that would make any moral father who believes in the "spare the rod and spoil the child" doctrine, give a son who should practice it such a dressing down as he would remember to his dying day. But this preacher of the gospel—this should-be expounder of the Golden Rule—simply raised a laugh over it, and said, "Such things always have been, and such things always will be in the sharp competitions of business life."

On my way home I heard half-grown boys ringing the changes on "that typical business transaction," trying to fix this cheating lesson in their minds, till I burned with indignation that that man should so degrade his high calling and the house that is called the house of God. I thought of Him who said, "It is written, 'My house shall be called a house of prayer'; but ye have made it a den of thieves," and wondered if He would not utter the same rebuke to-day were He walking the earth. I blush to bear the name of Christian in common with a man who is satisfied to make money by amusing an audience with the moral deformities of his fellow-men, just as some who are called "vulgar fellows" do with such physical deformities as a crossed eye or a hunched back. Anyone at all inclined to depend on the speaker's idea of the matter and not

previously educated in common morality, would have left that church with the impression that lying and cheating are perfectly right and proper in "business transactions."

The talk about women and girls was equally vitiating. The wife was the power behind the throne, managing the husband by intrigue; the daughter was the young lady maneuvering for a rich husband. However true these delineations of character may be, it is most hurtful to present them with good-natured toleration as they were inevitable and the best humanity is capable of. Whenever the weak, bad side of humanity is presented, the strong and good should be given in contrast.

Such a speaker, a church congregation who engage such a speaker, and an audience that smiles complacently on such a speaker, are enough, for a time, to dishearten the most ardent believer in the final supremacy of truth and justice, and make us believe that the country is sold out, the pulpit, press, and legislatures all given over to the greed of gain. In that whole lecture was not one spark of earnestness. The people paid fifty cents, and seemed satisfied that the Rev. Zany had given them their money's worth in amusement.

And now let me speak for a little of another lecture, entitled "The Needs of the Hour." This was a free lecture. I heard it some time before the one just described, on a rainy evening in a small basement room of a small church; but its purity, sweetness, vigor, and moral earnestness stay with me yet, and I yet feel grateful for that uplifting. This, too, showed the base, low side of life, but it also showed what might be and should be, and outlined the means to that end. Though I am usually not fond of repetitions, I would go a long distance to hear that lecture again. It made the right look so desirable and the wrong so undesirable, that we could but feel that because of its very desirability, the right must finally supersede the wrong. And yet, it is sorrowful that so many would pay for, and hear, and applaud the bad, while so few would take the good when freely given.

CELIA B. WHITEHEAD.

THE EDITOR of *Our Best Words*, published at Shelbyville, Ill., writes thus appreciatively of the PHRENOLOGICAL JOURNAL:

"As well as we recollect, the first dollar that we could ever call our own we gave for a year's subscription to this journal. That was in our boyhood, more than thirty years ago; and it is not too much to say that this journal was a very important plank in the bridge that carried us over a perilous period of our life. There were bad books and papers even then, for young people to read, and we saw some of them, and but for the good fortune of the attractive pages of the PHRENOLOGICAL JCURNAL we probably would have read them more than we did, and been led sadly astray, as many boys have been before and since. We have been a reader of the JOURNAL more or less from that time. There are thousands of young and old people who are in danger of bad literature now, as we were then, who would be greatly interested in it and benefited by this journal. Therefore, for the sake of all such, as well as for old friendship's sake, and in gratitude we hereby heartily commend the periodical that was a part of the bridge which carried us safe."

PERSONAL.

LIZZIE BRASLEY, of White Cloud, Kan., decided to kill herself by refraining from food. She lived fifty-three days, refusing to speak or take any nourishment during this long period. Dr. Tanner, try again.

COL. HYATT, principal of the Pennsylvania Military Academy, and Captain Carter, of the same institution, declined to attend a meeting of the graduates of their own institution, as wine was to be served at the dinner. All honor to such obedience to principle.

GENERAL MCCLELLAN, Mr. Brayton Ives, and other New Yorkers, have formed a company to operate what will probably be the largest cattle ranche in the world. It is in Grant County, N. M., and is about forty miles from east to west, and sixty from north to south, comprising about 1,500,000 acres of grazing land.

MISS CATHARINE L. WOLFE, probably the wealthiest unmarried lady in the United States, purposes to send a party of explorers to Babylon, headed by Dr. W. H. Hayes. In this way she can use some of her income in the cause of science, and laudably. Heretofore art collections seem to have drawn most on her cheque-book.

JANE GREY SWISSHELM, the well-known writer, died July 12th, at her residence in Swissvale, near Pittsburgh, Pa. Mrs. Swisshelm was nearly seventy years of age, but still vigorous and active in the cause of reform to which she had devoted the greater part of her life. She was prominent in temperance work, and advocated the higher education of women and their right to the ballot.

THE Bates family had a delightful reunion at the home of their father and mother, Webster, Mass., July 12th last. Mr. Nelson Bates is 83, his wife 80; they have been married 60 years. All their sons and daughters, eight in number, are living, and they have also 31 grandchildren, and 14 great-grandchildren. An exchange informs us that the Rev. Lucius Holmes married Sophia, one of the daughters, and was present at the reunion, contributing to its enjoyment by his genial humor.

WISDOM.

"Think truly, and thy thought
Shall be a fruitful seed."

IT is inconceivable how much wit is required to avoid being ridiculous.—*Chamfort.*

OUR greatest glory is not in never falling, but in rising every time we fall.—*Confucius.*

YOU might spend the wealth of the Indies, but the infinite richness of God you can never exhaust.

NATURE has sometimes made a fool; but a coxcomb is always of a man's own making.—*Addison.*

GOD gives you the best nourishment, although not always the sweetest to the taste.—*Madame Guyon.*

THERE is a gift that is almost a blow, and there is a kind word that is munificence; so much is there in the way of doing things.—*Arthur Helps.*

WE call it our duty to leave to the world its gaiety and its thoughtlessness; but too often we leave to it also its grace, and gentleness, and courtesy, and self-control.

Daily trials, daily troubles,
In our lives must bear a part;
Struggle through them strongly, bravely,
With a steadfast, hopeful heart.

THE average man doesn't feel as bad when he receives ten dollars too much change as when he gets ten cents too little. He is more anxious to correct the little mistake than he is to rectify the big one.

MEN do things which their fathers would have deprecated, and then draw about themselves a flimsy cordon of sophistry, and talk about the advance of humanity and liberal thought, when it is nothing after all but a preference for individual license.—*Rev. John Hall.*

MIRTH.

"A little nonsense now and then
Is relished by the wisest men."

"MY dear!" said a lady to her husband, "what is cotton duck?" "Oh!" said he, "a kind of canvas-back."

WHEN the marriage ceremony was over, the parson was approached by the groom with the question: "What's the *damage*, elder?"

MR. DUDE: "I always sleep in my gloves, Miss Fresh; it makes my hands so soft."—Miss Fresh: "And I judge you sleep with a cap for the same reason."

CAUCUSES are in order now. What is a caucus? Why, when one man quietly gets together thirty or forty of his friends and they all vote as he tells them to.

"DON'T you remember me?" asked the soda-water clerk of a lady customer. "No, I can not say that I do," she replied, "and yet there is something familiar about your fizz."

AN old farmer who wrote to an editor asking how to get rid of moles, and received the reply: "Plough them out," answered back: "Can't do it. It's on my gal's nose."

A PHOTOGRAPHER in a country town was recently visited by a young woman, who, with sweet simplicity, asked, "How long does it take to get your photograph after you have left your measure?"

A CHICAGO paper says: "Laziness is not always evenly distributed over a fellow. You may have known a great many lazy people, but did you ever know anybody who didn't use his mouth enough?"

JUDGE: "If that man don't stop disturbing us with that coughing, I'll fine him $10."—Response: "Jedge, I'll be willing to pay $20 to have that cough stopped. If you can do it for $10, better get off the bench and go to practicing medicine. There's money in it, Jedge, money in it."

A YOUNG man was frequently cautioned by his father to vote for "measures, not men." He promised to do so, and soon after gave his vote for Mr. Peck. His father, astonished at his voting for a man whom he deemed objectionable, inquired the reason for doing so. "Surely, father," said the son, "you told me to vote for measures, and if Peck is not a measure, I don't know what is."

THE following is a copy of a note lately received by a teacher in one of the New York schools:

"MRS. M.:—Except these few lines frome a mother's love to her child those evel-mided boys tellig storys on Johny when the Go down to reses to you to Get him blamed to you there like parisees in Gospel the see beams in there neigbours but the dont pluck mote oute of there One."

JOHNNY thought it would be nice to be a giraffe, for then he could stand on the ground and eat the apples, pears, and cherries that grew on Farmer Jones' trees, beyond the danger of dogs and bear-traps, and could also taste the good things all the way down his neck. But Johnny had a sore throat the other day, and as he laid his head on his pillow upon retiring, he confidentially remarked to his mother that he was glad he wasn't a giraffe, after all. A giraffe, with two or three yards of sore throat, dwarfed his own affliction into nothingness by comparison.

Library.

In this department we give short reviews of such NEW BOOKS *as publishers see fit to send us. In these reviews we seek to treat author and publisher satisfactorily and justly, and also to furnish our readers with such information as shall enable them to form an opinion of the desirability of any particular volume for personal use. It is our wish to notice the better class of books issuing from the press, and we invite publishers to favor the Editor with recent publications, especially those related in any way to mental and physiological science. We can usually supply any of those noticed.*

PROPERTY IN LAND. A Passage-at-Arms between the Duke of Argyll and Henry George. 12mo, pp. 77. Price in paper, 15 cents. Published by Funk & Wagnalls, New York.

The Duke of Argyll, in an essay entitled "The Prophet of San Francisco," which appeared in the *Nineteenth Century*, for April of this year, takes up the cudgel vigorously and sharply in behalf of the great landed proprietors, of whom he is a distinguished representative. He criticises, with that keen dialectical skill of which he is a well-known master, the doctrines of Mr. George in relation to ownership of land. Many logicians deem his points irrefutable, and say that he disposes most effectually of all claims on the part of Mr. George as a safe champion of socialism. The essay may be generally accepted as expressing the opinion honestly held by the hereditary land-owner of England.

The criticism of the Earl was soon followed by a powerful reply from Mr. George, entitled "The Reduction to Iniquity." There is a sarcasm in the title that has a sting in itself. The essays, when placed in juxtaposition, invite careful reading, for they contain in condensation the earnest declarations of two talented men, and show, as one might say, the true inwardness of the doctrine of right to own land, and of the right or claim to the free use of land by the people. "I am convinced," says Mr. George, "that if the Duke of Argyll will consider the matter as a philosopher rather than as a landlord, he will see the gross inconsistency between the views he expresses as to negro slavery, and the position he assumes as to property in land. In principle the two systems of appropriating the labor of other men are essentially the same, since it is from land and on land that man must live if he is to live at all. A human being is as completely enslaved when the land on which he must live is made the property of another, as when his own flesh and blood are made the property of that other." Thus, the radical Mr. George. We must confess that his radicalism is very elevated in tone. The Duke, on the other hand, is essentially utilitarian. In his view of the question he relies upon his personal experience as a land-owner, and he looks upon Mr. George's propositions as simply absurd in their assertion, and preposterous in their demonstration.

THE HOME IN POETRY. Compiled by Laura C. Holloway, author of "Ladies of the White House," etc. 12mo, pp. 244. Price 25 cents. Funk & Wagnalls, Publishers, N. Y.

Our cyclopedias of poetry are very incomplete and deficient in their selections relating to home, when compared with the multitude of excellent contributions from distinguished pens that make up this collection. The list is divided into eight parts: Songs of Home, Home Pictures, Voices of Home, Home Memories, Joy and Love of Home, Stories of Home, Home and Heaven Gleanings. Properly bound, the book would make a pleasing addition to our home libraries.

L'EVANGELISTE. By Alphonse Daudet. 12mo, paper, 50 cents. New York, Funk & Wagnalls.

M. Daudet is recognized as the leading novelist of France, and his books are read everywhere. They are clean, high in tone, spirited and of a type of imagination quite beyond the commonplace. In the present work he has expressed his opinion of the doings of that well-known system of proselyting called the Salvation Army, yet we think that an American reader would scarcely recognize his portraits from what is known of Salvation Army effort in this country. The heroine, Eline Ebsen, is a Dane, living with her mother in the Scandinavian colony in Paris. She is on the point of being married, and a happy life seems in store for her, but suddenly a disturbing influence appears in the shape of Madame Autheman, a wealthy banker's wife, who is given to making religious converts. This woman hires Eline to translate some prayer-books, and during the execution of the work the girl becomes filled with her patron's enthusiasm. She breaks with her suitor and deserts her mother to serve as a preacher in the Salvation Army. It goes without saying that Daudet portrays French life in its different lights and shadows with a master pen, and fascinates the attention from first to last. He has in great part the graphic power of the elder Dumas, without that great writer's intense sensationalism.

PUBLICATIONS RECEIVED.

IN HARPER'S MAGAZINE, for August, more than customary space is given to American life and scenery. The West is represented by Montana and Salt Lake City, the East by Richfield Springs and Boston. But probably the reader will dwell more longingly on the beautifully illustrated sketches of Holland, and the pretty "Nature's Serial Story," with its rich flower clusters.

THE BUTLER HEALTH-LIFT, its reasons and its facts, ninth revised edition, showing the effects of systematic and intelligent use of the lifting machine with the above name. Lewis Janes, 76 Wall St., New York, Publisher.

A PERSONAL NARRATIVE OF OPIUM ADDICTION. By J. B. Madison, M.D. Read before the New Jersey State Medical Society, at Atlantic City.

THE PROHIBITION SONGSTER. A new collection of words with music, adapted for uses as a campaign song-book, in temperance societies and gatherings. Some of the best writers in the temperance line are represented. 12mo, paper, 15 cents. J. N. Stearns, Agent, New York.

POPULAR SCIENCE MONTHLY, for August, is, if anything, a little more miscellaneous than usual; leaving the graver channels of scientific discussion here and there, for something of a more attractive nature to the average reader. We are told about Hickory-nuts and Butternuts, The Ghost of Religion, The World's Geyser Regions, Mystic Properties of Numbers, etc. A sketch of Professor Felipe Poey, an eminent French mathematician, is given, accompanied by a portrait. D. Appleton & Co., Publishers.

NORTH AMERICAN REVIEW, Allan Thorndyke Rice, editor, contains in its August Number a variety of solid thought, suggestive and appropriate as usual to the masses. The main titles are The Encouragements of Capital, The Origin of Comets, Are we a Nation of Rascals? The Drift towards Centralization, Prohibition and Persuasion.

THE CENTURY, for August, is a rich and beautiful Number, beyond, we had almost said, its customary degree of excellence; but perhaps our own ideas of art are more nearly met in the Number than is customary, and for that reason we are inclined to say it is an exceptional issue. "A Glance at British Wild Flowers" contains several very admirable engravings. "Recent Architecture in America" shows in fine contrast new methods of building, especially in Boston and New York. "On the Track of Ulysses" contains many classical reminiscences with fine views of Greek scenery.

RULES OF THE THEOSOPHICAL SOCIETY, together with an explanation of its objects and principles. Printed at Madras, New York.

ANNUAL CATALOGUE OF TRINITY COLLEGE, North Carolina. This circular is interesting in one particular at least. It contains the names of some twenty Cherokee Indian students.

OUR LITTLE MEN AND WOMEN, published by D. Lothrop & Company, of Boston, is an admirable publication for the little ones.

THE NEW YORK HOSPITAL. Annual report of the conference committee in charge of the training-school for nurses, together with an address to the graduating class. To fit women by special study for the very important office of nurse, is one of the developments of our day most worthy of esteem and encouragement.

HARPER'S ILLUSTRATED WEEKLY, HARPER'S BAZAAR, and HARPER'S YOUNG PEOPLE, come to our table with faithful regularity. The recent attitude taken by the editor of the *Weekly*, with reference to the political situation, has given that publication a character scarcely ever before sustained, and doubtless added much to its circulation. Of the *Bazaar*, as a very useful accessory to a lady's boudoir, little need be said, as its merit is universally acknowledged. The Weekly for young people is unsurpassed in its class of entertainment for young minds.

ROSA DARLING. Song and chorus composed by George M. Vickers and John P. Dougherty. Published by the latter at Chester, Pa. Price 40 cents, for piano. Up to the average of love-songs.

THIRTEENTH ANNUAL CATALOGUE of the Morgan Park Military Academy, for the academical year commencing Sept. 9, 1884. Capt. Ed. N. Kirk Talcott, Superintendent. We know Capt. Talcott well, and can vouch for the high character of the school that he conducts. Its situation is in a charming suburb of the great lake metropolis.

THE HOMILETIC MONTHLY for August has a good display of sermons and notes from a dozen or more distinguished preachers of the day, among whom are Dr. Gerok of Germany, Spurgeon and Stopford A. Brooke of London, Hall and Storrs of Brooklyn, the late Bishop Simpson, Drs. Armitage and Crosby, etc. But the article likely to attract most attention is the one on "Lay Criticism on the Ministry and the Methods of Church Work," by Mr. Swinton of the New York press. It is a bold and terrible arraignment of "the thousand clergymen of New York," and the entire Christian Church. But "A Veteran Observer" is allowed to reply to Mr. Swinton, and he proves himself to be a master of the subject, and presents an array of facts that have the character of a clear and unanswerable vindication. Funk & Wagnalls, New York.

CANDY-MAKING AT HOME. By one who has tried it. Containing full directions for making 250 different kinds. If candy must be eaten by all young and old folks, it is far better that they prepare for themselves the creams, the caramels, and the taffies, the chocolate drops, and the lozenges, then they will know what they suck with so much gusto. There will be a substantial sweetness in the mucilaginous ooze that can scarcely be found in the anomalous products of the shops. Price of the book is 50 cents. F. R. Everston & Co., Boston, Publishers.

PLAIN FACTS OF ARKANSAS AND TEXAS. Illustrated with diagrams. By H. C. Townsend.